

TencentDB for MySQL

Getting Started

Product Documentation



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Getting Started

Overview

Last updated : 2024-07-22 13:01:25

This document describes how to get started with TencentDB for MySQL from instance creation to basic use. To use an instance, you need to complete the following operations.

1. Create a TencentDB for MySQL instance

In the TencentDB for MySQL console, you can create MySQL instances with different billing modes and configurations. For more information, see [Creating MySQL Instance](#).

2. Connect to the TencentDB for MySQL instance

After creating the TencentDB for MySQL instance, you can connect to it in many ways and then perform various database management operations. For more information, see [Connecting to MySQL Instance](#).

If you encounter connection failure, see [Instance Connection Failure](#).

Creating MySQL Instance

Last updated : 2024-05-14 17:43:49

This document describes how to create a TencentDB for MySQL instance in the console.

Prerequisites

You have registered a Tencent Cloud account and completed identity verification.

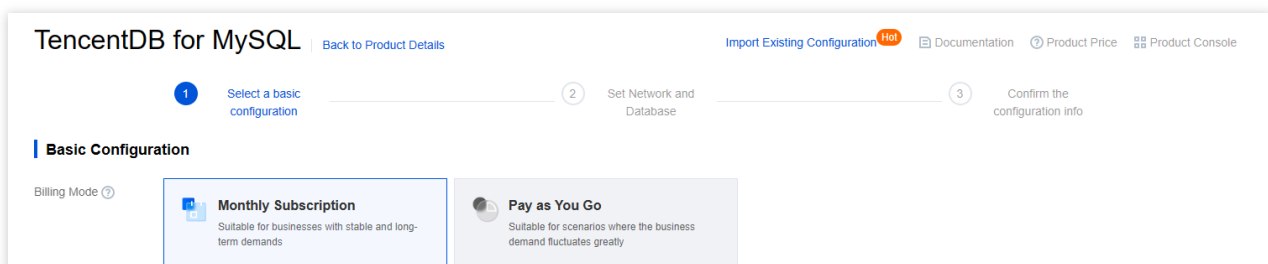
To register a Tencent Cloud account:

To complete identity verification:

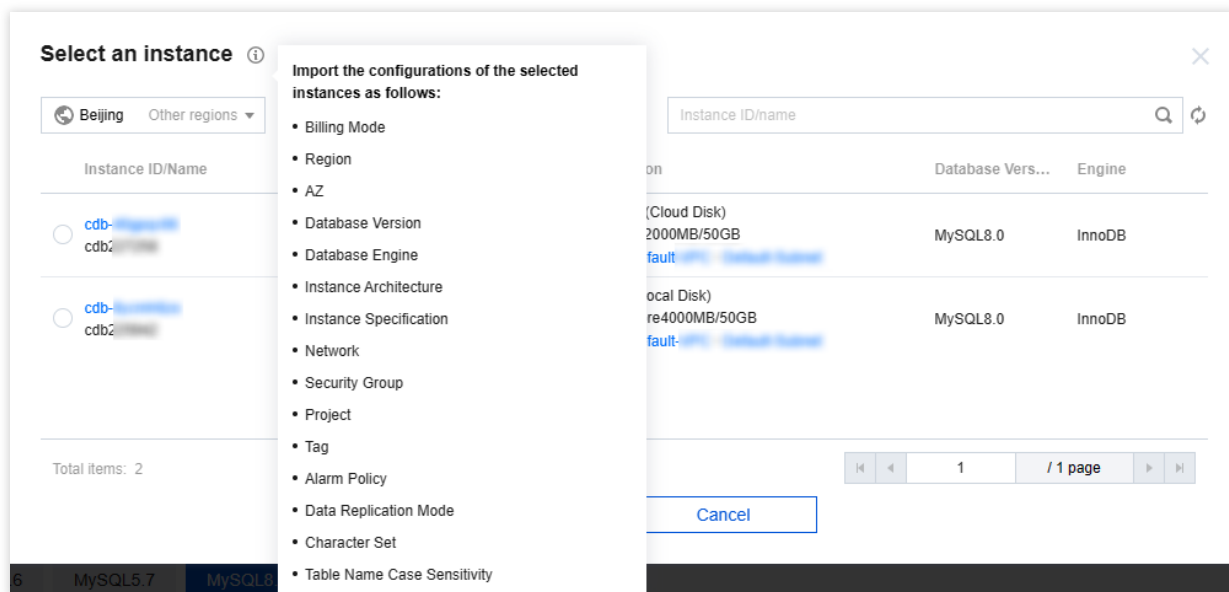
Note:

The new purchase page allows you to **import existing configuration**. If the logged-in account has an existing TencentDB for MySQL instance, this feature can automatically configure the new instance parameters on the purchase page, making it easier for you to adjust the existing configuration or directly purchase a new instance as follows:

1. On the purchase page, click **Import Existing Configuration** in the top-right corner.



2. In the pop-up window, select the existing target instance in the corresponding region and click **OK**.



Purchasing in the console

1. Log in to the [TencentDB for MySQL purchase page](#), complete **Basic Configuration** and **Instance Configuration** as needed, and click **Next: Set Network and Database**.

Basic Configuration

Billing Mode: Monthly subscription and pay-as-you-go billing are supported.

If your business has a stable long-term demand, we recommend that you select monthly subscription.

If the request volume of your business fluctuates greatly and instantaneously, we recommend that you choose pay-as-you-go billing.

Region: Select the region where you want to deploy your TencentDB for MySQL instance. We recommend that you use the same region as the CVM instance to be connected to. Tencent Cloud services in different regions cannot communicate with each other over the private network. The region cannot be modified after purchase.

Database Version: Currently, TencentDB for MySQL supports MySQL 8.0, 5.7 and 5.6. For more information on the features of each version, see [MySQL 5.7 Reference Manual](#).

Note :

It is recommended to use the more recent database versions of MySQL 8.0 and 5.7.

The Cluster Edition architecture only supports the selection of MySQL versions 8.0 and 5.7.

Engine: Select InnoDB or RocksDB.

InnoDB: The most commonly used OLTP storage engine, with complete transaction support and powerful capability of highly concurrent reads/writes.

RocksDB: A key-value storage engine, with efficient writing and high compression. If it is selected, the architecture will be two-node.

Architecture: Single-node, two-node, three-node or Cluster Edition architecture is supported. For more information, see [Database Architecture Overview](#).

Disk Type: The hard disk is used to store the files required by MySQL execution. TencentDB for MySQL supports local disk and cloud disk.

Two-node and three-node instances use local SSD disks.

Single-node instances use cloud disks.

Availability Zone: Two-node, three-node, and Cluster Edition architectures allow for the selection of a source availability zone and a replica availability zone. Selection of different source and replica zones (i.e. [multi-AZ deployment](#)), enhances database protection against failures or disruptions within an availability zone.

For two-node and three-node architectures, it is necessary to select a source availability zone and a replica availability zone.

For Cluster Edition architecture, you must choose the number of read-only nodes, as well as the availability zones for both read-write and read-only nodes.

Number of Read-Only Nodes: By default, there are two read-only nodes, supporting manual selection of one to five nodes.

Read-Write Node Availability Zone: Select the availability zone for the read-write nodes.

Read-Only Node Availability Zone: Depending on the number of read-only nodes, sequentially select the availability zones for these nodes. The specific range of availability zones is subject to the actual purchase page. If the availability zones for the read-only nodes are not actively selected, the system will automatically allocate them.

Note:

If the source and replica are in different AZs, the network sync delay may increase by 2–3 ms.

When you purchase Tencent Cloud services, we recommend that you select the region closest to your end users to minimize access latency and improve download speed.

Instance Configuration

Filter: You can quickly filter the needed CPU and memory specifications for the instance. By default, all CPU and memory specifications are selected.

Type: By default, single-node is of the Basic instance type. Two-node and three-node provide General and Dedicated instance types. Cluster Edition provides Standard and Enhanced instance types. For more details, see [Isolation Policy](#).

Instance Specs: Select specifications as needed.

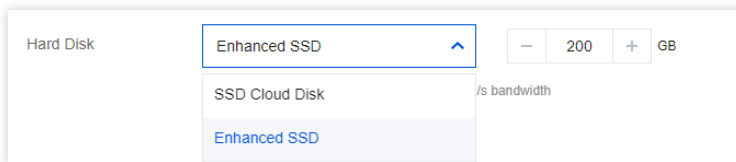
Hard Disk: Select the disk size. The disk is used to store the files required by MySQL execution.

The single-node and Cluster Edition architecture is Cloud Disk. For information on disk types, see [Disk Types](#).

Single-node supports SSD and Enhanced SSD Cloud Disks. The selectable disk capacities range from 20 to 30,000 GB.

The Cluster Edition supports Tremendoust SSD, Enhanced SSD, and SSD Cloud Disks. The selectable disk capacities range from 20 to 30,000 GB.

Data Protection Space: To ensure the recoverability of the database instances, Cluster Edition instances must allocate a designated amount of space specifically for data protection within the instances. This reserved space is not used for data storage and is categorized as system protection space, designed to prevent potential instance malfunctions resulting from data overflow. The setting range is 1 - 10 GB, with the default of 1GB.



2. Configure **Network and Others** and **Database Settings** and click **Next: Confirm the configuration info.**

Network and Others

Network: You can select the network and subnet for the instance. VPC is supported. If existing networks do not meet your requirements, you can create [VPCs](#) or [subnets](#).

Note:

A subnet is a logical network space in a VPC. You can create subnets in different AZs in the same VPC, which communicate with each other over the private network by default.

After you select a network, the subnet IPs in the AZ of the selected instance are displayed by default. You can also select subnet IPs in other AZs in the region of the instance. Business connections adopt nearby access, so the network latency will not be increased.

We recommend that you select the same VPC in the same region as the CVM instance to be connected to. Otherwise, the MySQL instance cannot connect to the CVM instance over the private network.

Custom Port: The database access port, which is 3306 by default.

Security Group: For more information on security group creation and management, see [TencentDB Security Group Management](#).

Note:

Port 3306 must be opened for the TencentDB for MySQL instance through the inbound rule of the security group. The instance uses private network port 3306 by default and supports custom port. If the default port is changed, the new port should be opened in the security group.

Project: Select a project to which the TencentDB instance belongs. The default project is used.

Tag: Categorize and manage resources with tags. For more information, see [Tag Overview](#).

Alarm Policy: You can create an alarm policy to trigger alarms and send messages when the Tencent Cloud resource state changes. For more information, see [Alarm Policies \(Cloud Monitor\)](#).

Database Settings

Instance Name: Name the instance now or later.

Data Replication Mode: For selecting a replication method for Non-single-node instances, see [Database Instance Replication](#).

By default, two-node instances are configured for asynchronous replication. Two methods of replication (asynchronous and semi-synchronous) are provided for two-node instances.

By default, three-node instances are configured for asynchronous replication. Three methods of replication (asynchronous, semi-synchronous, and fully synchronous) are provided for three-node instances.

By default, Cluster Edition instances are configured for semi-synchronous replication. Two methods of replication (asynchronous and semi-synchronous) are provided for Cluster Edition instances.

Parameter Template: Besides the system parameter template provided by TencentDB, you can create a custom parameter template. For more information, see [Managing Parameter Template](#).

Character Set: LATIN1, GBK, UTF8, and UTF8MB4 character sets are supported. The default value is UTF8. After purchasing the instance, you can change the character set on the instance details page in the console. For more information, see [Use Limits > Notes on character set](#).

Collation: The instance character set provides a case- and accent- sensitive collation for system data.


Table Name Case Sensitivity: Specify whether the table name is case-sensitive. Note that this configuration cannot be modified once set for MySQL 8.0.

Password Complexity: Only two-node, three-node, Cluster Edition instances support setting of password complexity to enhance database security. It is disabled by default. For more information, see [Setting Password Complexity](#).

Root Password: Set the password of the root account (the default user name for a new MySQL database is "root"). If you select **Set After Creation**, you can reset the password after creating the instance. For more information, see [Resetting Password](#).

3. Confirm the selected configuration items (if you need to modify them, click **Edit** to return to the corresponding step and make changes), read and indicate your consent to the **Terms of Service**, confirm the **Validity Period** and **Quantity**, and click **Buy Now**.

4. You will be returned to the instance list after you purchase the instance. The instance will be in the **Delivering** status. You can use the instance after around 3–5 minutes when its status changes to **Running**.

Create	Comparative Monitoring	Restart	Renew	More	Separate keywords with "; press Enter to separate filter tags		
<input type="checkbox"/>	Instance ID/Name	Monitoring/Status/Tasks	AZ	Configuration	Database Version	Engine	Private Network Address
<input type="checkbox"/>	tk Renew	 Running	Shanghai Zone 3	Single-node(Cloud DI... Basic-1core2000MB/... Network:	MySQL8.0	InnoDB	

Subsequent operations

You can access the TencentDB for MySQL instance over both private and public networks from a Windows or Linux CVM instance. For more information, see [Connecting to MySQL Instance](#).

Connecting to MySQL Instance

Overview

Last updated : 2023-12-27 16:28:05

This section provides an overview of the methods for connecting to MySQL instances, application scenarios, and FAQs.

Connection Methods

Connection Methods	Application Scenarios	Billing
Private Network Connection	The CVM and TencentDB for MySQL instances are in the same VPC in the same region under the same Tencent Cloud root account. For details, please refer to Scenario 1 .	No charge currently
Public Network Connection	<p>In scenarios where private network connections are unavailable, you can use public network connections. For details, please see Scenario 2.</p> <p>Note:</p> <p>Public network connections can be influenced by network performance. If you have higher network requirements, we recommend using Private Network Connection or CCN Connection.</p>	No charge currently
CCN Connection	This connection method applies when the CVM and MySQL are under different VPCs or if the Lighthouse is used for establishing the connection with MySQL. For details, please refer to Scenario 3 .	CCN Connection Billing

Application Scenario Description

Scenario 1: Private Network Connection

The CVM and MySQL belong to the same Tencent Cloud root account, located in the same region and both are VPC network types under the same VPC.

Example:

Under account 1, a CVM instance is under subnet A of VPC1 in the Guangzhou region and a MySQL instance is under subnet B of VPC1 in the same region under the same account.

Scenario 2: Public Network Connection

In scenarios where a private network connection is not possible, public network connection can be used. It requires that MySQL has already [enabled public access](#).

Example:

Under Account 1, a CVM instance resides under subnet A of VPC1 in the Guangzhou region and a MySQL with public access enabled resides in the same region.

Under Account 1, a CVM instance resides under subnet A of VPC1 in the Guangzhou region and a MySQL with public access enabled resides in the Beijing region.

Under Account 1, a CVM instance resides under subnet A of VPC1 in the Guangzhou region, and under Account 2, a MySQL with public access enabled resides in the Beijing region.

Scenario 3: CCN Connection

1. The CVM and MySQL instances are in different VPCs (this includes both same/different accounts and same/different regions).
2. Under the same Tencent Cloud account, if the purchased server is a [Lighthouse](#) instance, to connect to the CDB instance, CCN connection is required.

Example:

Under Account 1, the CVM instance resides under subnet A of VPC1 in the Guangzhou region, and the MySQL instance is under subnet B of VPC2 in the Guangzhou region.

Under Account 1, the CVM instance resides under subnet A of VPC1 in the Guangzhou region and the CDB instance is under subnet B of VPC2 in the Beijing region.

Under Account 1, the CVM instance is under Subnet A of VPC1 in the Guangzhou region, and under Account 2, the MySQL instance is under Subnet B of VPC2 in the Beijing region.

Under Account 1, the Lighthouse instance is under Subnet A of VPC1 in Guangzhou, and the MySQL instance is under Subnet B of VPC2, also in Guangzhou.

FAQs on Connection

For a comprehensive overview of common issues and recommended processing regarding different methods of connecting to CDB instances, please refer to [FAQs on Connection](#).

Private Network Connection

Last updated : 2023-12-27 10:04:25

This document provides a detailed guide on how to connect to a database using a CVM instance through the MySQL's private network address.

Background

When a CVM instance and MySQL instance belong to the same Tencent Cloud root account, reside in the same region, and are in the same VPC, we suggest establishing the database connection via the private network. The low network latency of the private network ensures a more stable and secure connection environment.

Connection Methods	Application Scenarios	Description	Billing
Private Network Connection	The CVM and TencentDB for MySQL instances are in the same VPC in the same region under the same Tencent Cloud root account. For details, please refer to Scenario 1 .	The private network provides high-speed connectivity and low latency.	No charge currently
Public Network Connection	<p>In scenarios where private network connections are unavailable, you can use public network connections. For details, please see Scenario 2.</p> <p>Note: Public network connections may be susceptible to network performance. If you have high network requirements, we recommend using private network connections or CCN Connections.</p>	<p>Third-party application connection services are supported.</p> <p>The public network address must be manually enabled.</p> <p>Enabling the public network address will expose your database services to the public network, which may lead to database intrusions or attacks.</p> <p>Public network connection applies to development or auxiliary management of databases but is not recommended for formal business access scenarios. Because the potentially uncontrollable factors may lead to unavailability of the public network connection, such as DDoS attacks and bursts of high-traffic access.</p>	No charge currently
CCN	This connection method applies when	Whole network is interconnected.	CCN

Connection	the CVM and MySQL are under different VPCs or if the Lighthouse is used for establishing the connection with MySQL. For details, please refer to Scenario 3 .	Provides low latency and high-speed transmission.	Connection Billing
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Preparations

Ensure that the MySQL instance is well-prepared. For detailed guidance, please refer to [Creating MySQL Instance](#).

Ensure that the CVM is ready. For further instructions, refer to [Customizing Configuration of Linux CVM](#).

Note:

When making preparations, please pay attention to the following aspects:

You need to authorize specific IPs or IP ranges to access the MySQL instance. This can be done via the TencentDB for MySQL console. For more information on this, see [Modifying Host Addresses with Access Permissions](#).

Create Account

Account Name *

The account name must contain 1-32 letters, digits, or symbols (_ .). It must end with a letter or a digit.

Host *

Enter the host.

1. IP format, supporting "%" "

2. Multiple host addresses are separated by delimiters, including semicolon (;) and space.

If you choose to use the root account to connect to MySQL, it's recommended to set the password directly when purchasing the MySQL instance. However, if you replicate existing configurations through the purchase page or create instances with identical configurations via the instance list, please ensure that you have reset the root password in the console [Reset Password](#). Otherwise, an error will occur when attempting to log in with a root account that has no password set.

Root Password

Set Now

Set After Creation

Enter the password of root acc

Enter the password

Enter the password of root acc

Confirm the password

You must configure the inbound and outbound rules for the CVM and MySQL instances in order to limit authorized IPs for accessing the MySQL instance. For details, see [TencentDB Security Group Management](#). The security group must release the internal port of the MySQL instance, which can be done by logging in to the [TencentDB for MySQL console](#) and clicking on the instance ID to review its port details. Remember the internal address; it will be used for future database connections.

MySQL Inbound Security Group Rules

Security group rules

Associated to

Snapshot rollback

Inbound rules

Outbound rules

Add rule

Import rule

Sort by priority

Edit all

Delete

Open all common ports

How to Set

Sepe

<input type="checkbox"/> Source	Protocol:port	Policy	Remark	Modi
IP address of CVM	Port of CVM			
<input type="checkbox"/> 1	TCP:36000	Allow		2023-

CVM Outbound Security Group Rules:

Security group rules

Associated to

Snapshot rollback

Inbound rules

Outbound rules

Add rule

Import rule

Sort by priority

Edit all

Delete

Open all common ports

How to Set



Sepe

<input type="checkbox"/> Target	Protocol:port	Policy	Remark	Mo
Internal IP address of MySQL	Internal Port of MySQL			
<input type="checkbox"/> 1	TCP:3306	Allow		202

The CVM and MySQL instances are on the same VPC. To modify the network settings of the MySQL instance, see [Switching Network](#).


The VPC of the CVM can be checked under **Instance Details > Basic Info > Network Info**:

Network information

Network	vpc-c[redacted]3(h[redacted]-test)
Subnet	sub[redacted]4p(h[redacted]-test)
Primary public IPv4	[redacted]3  

The VPC of the MySQL can be checked under **Instance Details > Instance Info > Network**:

Instance Info

Project	De[redacted]t Switch to Another Project
GTID	Enabled
Character Set/Collation	UTF8 / UTF8_GENERAL_CI 
Network	Defa[redacted] - Defa[redacted]t Change Network
Tag	Edit

Operation Guide

Step 1: Log in to CVM.

1. Log in to the [CVM Console](#), find the target CVM in the instance list and click **Log In** in the actions column on the right.

<input type="checkbox"/> ID/Name	Monitoring	Status ▾	Availability zone ▾	Instance type ▾	Instance configuration	Primary IPv4 ⓘ	Instance billing mode ▾
<input type="checkbox"/> ins- [redacted]		Running	Hong Kong Zone 2	Standard SA2	2-core 2GB 5Mbps System disk: Balanced SSD Network:	[redacted]36 (Public) 1 [redacted].7 (Private)	Pay-as-you-go Created at 2022-11-15 00:04:17

2. In the **Login** window, choose password login, enter the username and password of the CVM, and click **Log In** to successfully access. As illustrated below:

Log in ×

Auto

Password

Key

Instance name/ID

/ ins-

Instance IP

☒ (Public)

User name

root

Port

36000

Password

Enter a password

[Forgot password?](#)

Log in

[Log in via VNC](#) ⓘ

☒ Save the login information to the connection configuration page for quick login next time. [How to log in quickly](#)

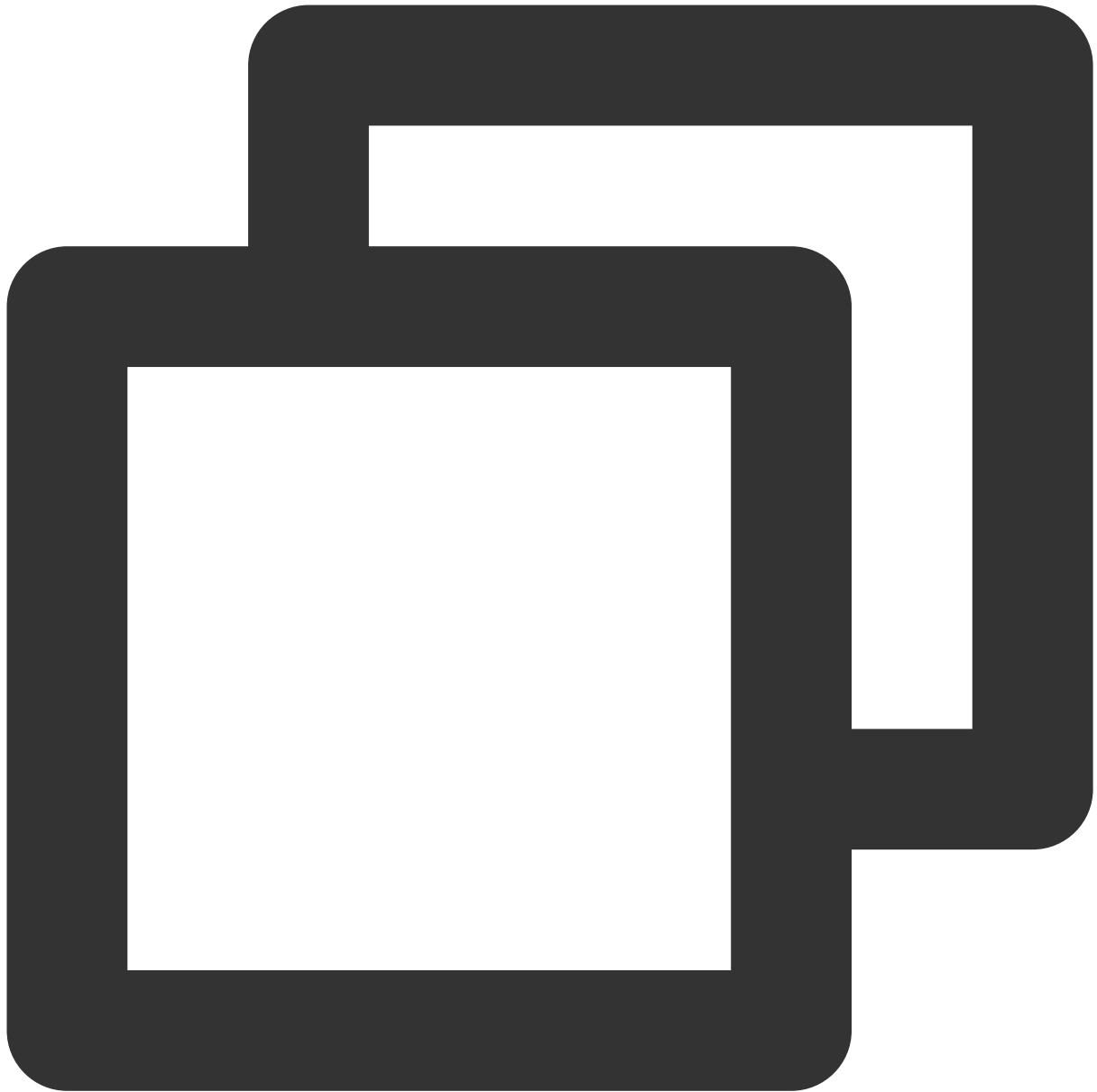
- Make sure the remote login port used by [OrcaTerm proxy IPs](#) is allowed in Security group.
[Learn more](#)
- For troubling shooting, see : [Unable to Log in to a Linux Instance](#)

3. Upon successful login, the interface appears as illustrated below:

```
Welcome to TencentOS 3 64bit
Version 3.1 20221031
tlinux3.1-64bit-5.4.119-19.0009-20221031
Last login: Thu Aug 31 14:50:13 2023 from [REDACTED]
[root@VM-0-5-tencentos ~]#
```

Step 2: Install MySQL client. (If it's already been installed on this CVM, you can skip this step.)

Run the following command to install MySQL client:

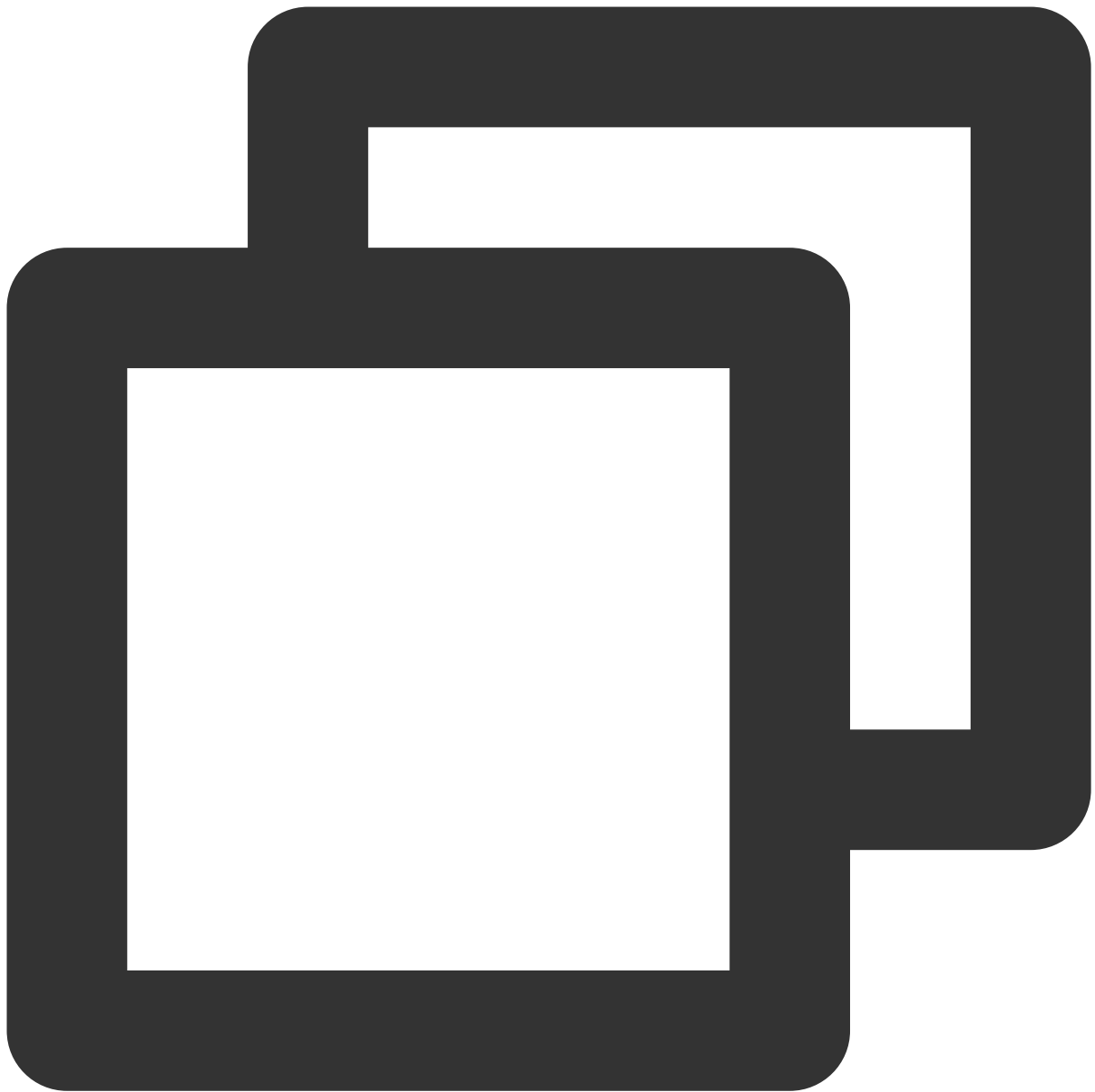


```
yum install mysql
```

If `Complete!` is displayed, the MySQL client is installed successfully.

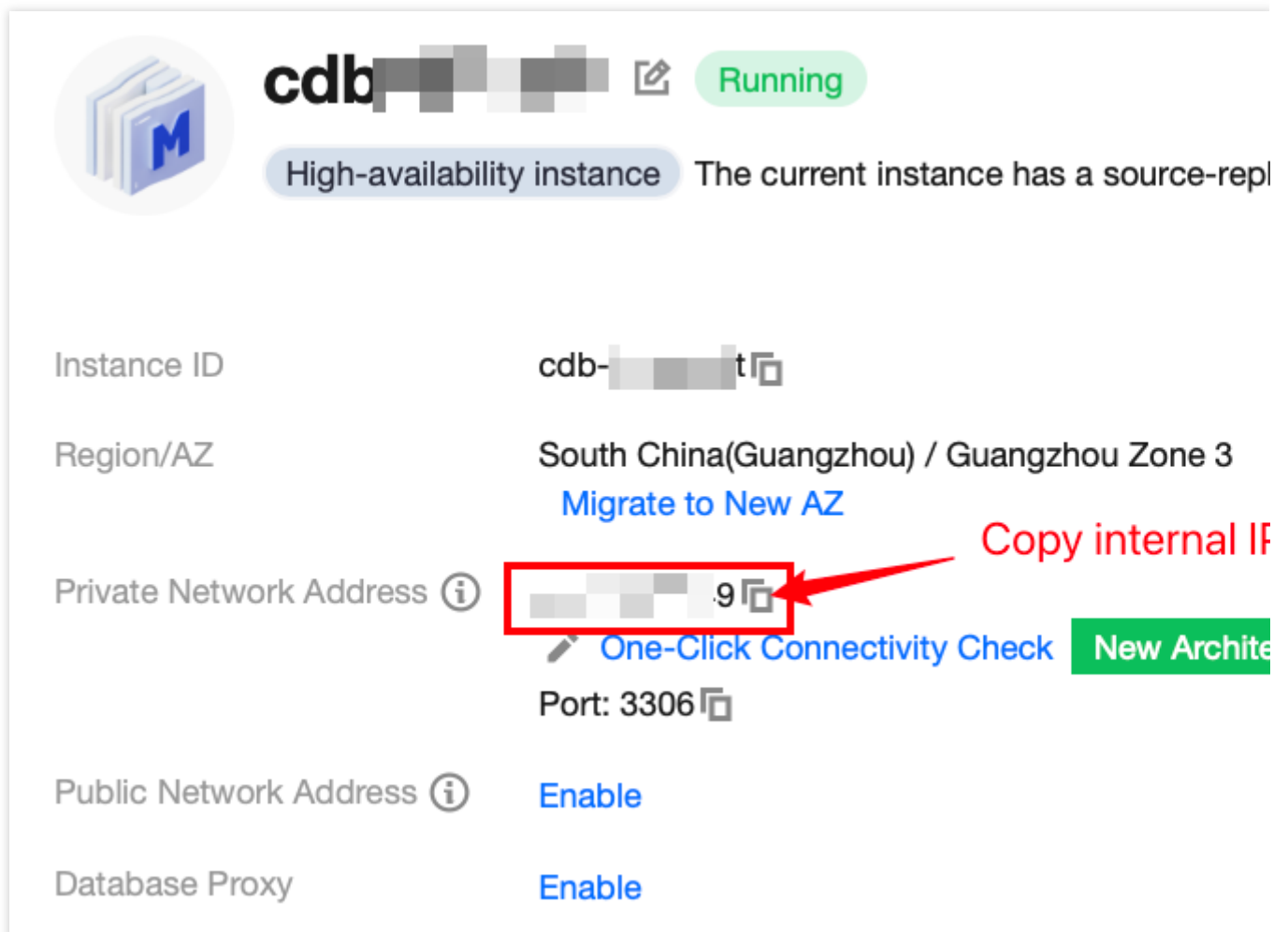
Step 3: Connect to MySQL by using CVM.

1. Run the following command in the CVM to log in to the MySQL database instance.



```
mysql -h <internal IP address> -u <username, default is root> -P <port number, defa
```

<Private network IP address>: Replace it with the private network address of your target MySQL instance, which can be viewed on the instance details page in the [TencentDB for MySQL console](#).



Instance ID: cdb-...t

Region/AZ: South China(Guangzhou) / Guangzhou Zone 3
[Migrate to New AZ](#)

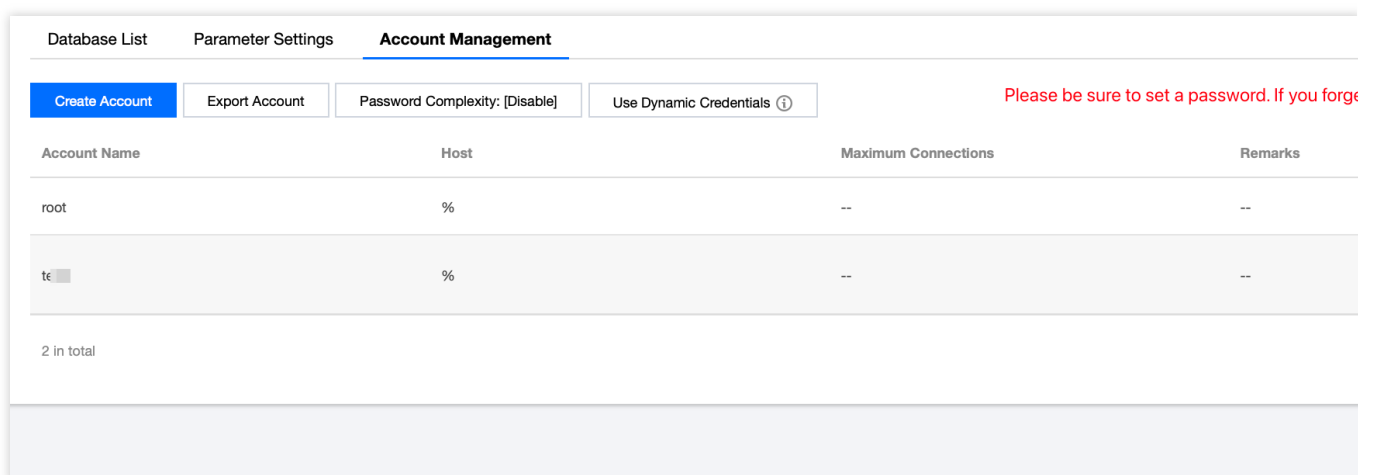
Private Network Address ⓘ: ...9
[One-Click Connectivity Check](#) [New Architecture](#)

Port: 3306

Public Network Address ⓘ: [Enable](#)

Database Proxy: [Enable](#)

<Username, default is root>: Replace it with the account name of your target MySQL instance. The default account name is 'root'.



Database List Parameter Settings **Account Management**

[Create Account](#) [Export Account](#) Password Complexity: [Disable] [Use Dynamic Credentials ⓘ](#) Please be sure to set a password. If you forget

Account Name	Host	Maximum Connections	Remarks
root	%	--	--
te...	%	--	--

2 in total

<Private network port number>: Replace it with the private network port number of the target MySQL database instance. The default is 3306. If the port number has been changed, the new port number can be viewed on the instance details page in the [TencentDB for MySQL console](#).



Private Network Address ⓘ  19 

 [One-Click Connectivity Check](#) [New Architecture](#)


Port: 3306 

Public Network Address ⓘ [Enable](#)

Database Proxy [Enable](#)

2. After being prompted with `Enter password:`, input the password corresponding to the MySQL instance's account. If you have forgotten your password, please refer to [Resetting Password](#) to make changes.

If `mysql>` is displayed, it means you have successfully logged into MySQL.

```
Welcome to TencentOS 3 64bit
Version 3.1 20221031
tlinux3.1-64bit-5.4.119-19.0009-20221031
Last login: Thu Aug 31 14:50:13 2023 from 175.143.3
[root@VM-0-5-tencentos ~]# mysql -h  -u root -P 3306 -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 1220
Server version: 8.0.30-txsql 20221220

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> |
```

Internal IP address

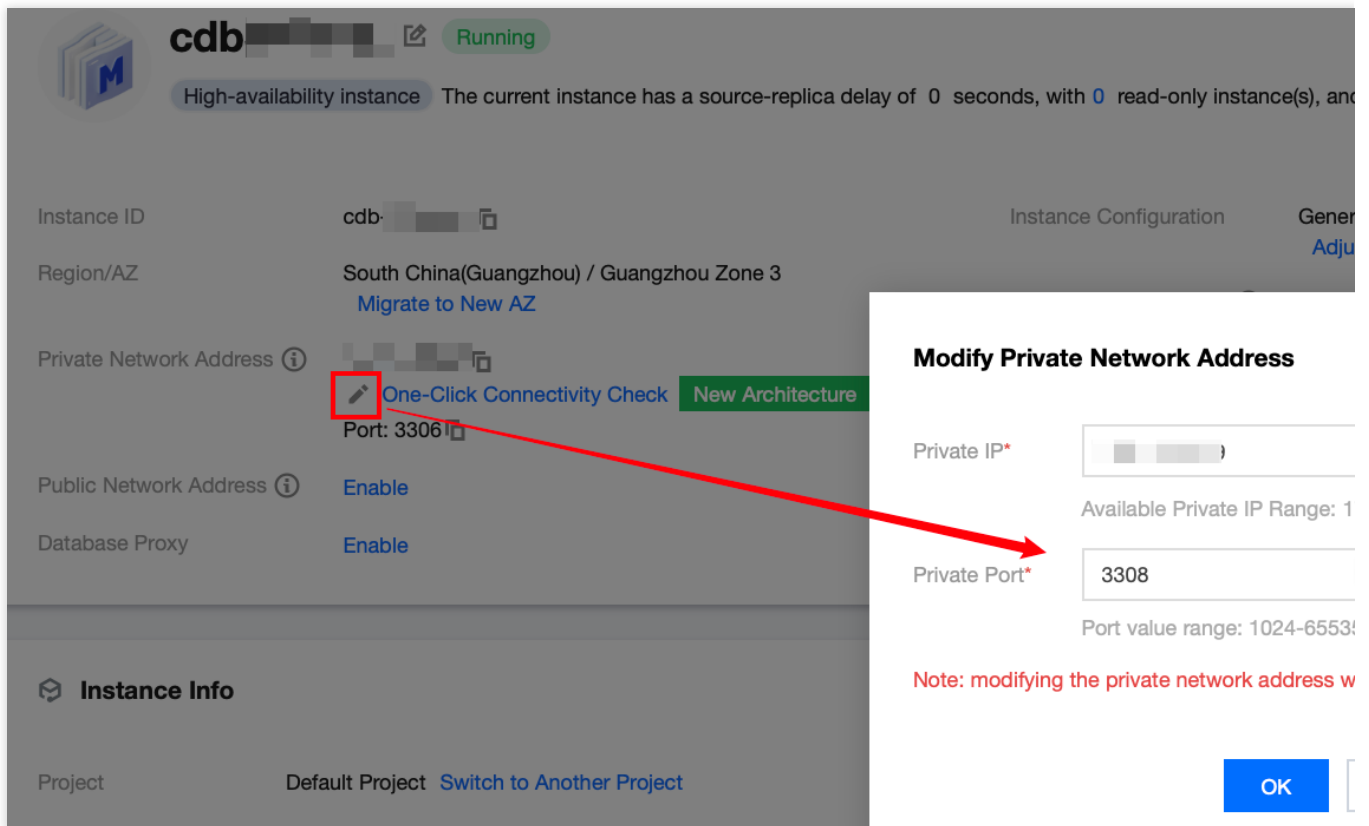
FAQs

Are there any charges for private network connection?

Private network connections are currently free of charge.

Can the private network port be modified?

Yes, it can be modified. You can log in to the [TencentDB for MySQL console](#), navigate to the details page of the target instance, and click the edit icon following the private network address to make changes.



How can I check private network connection errors?

The potential causes for the failure to connect to a database via a private network address could be typically related to the type of CVM, account password, port, DFW, the network, and instance issues. The following provides self-check methods in various scenarios. For more self-check procedures, please refer to [Private Network Connection Failure](#).

1. Check whether the server you are using is a CVM.

For private network connections, the server in use needs to be a [Tencent CVM](#). If you are using a [Lighthouse Server](#) or another non-Tencent server, connecting through a private network address is not currently supported. You can refer to [Customizing a Linux CVM](#) to recreate a CVM and then connect to the database using the private network address.

2. After logging into the CVM instance, if you repeatedly fail to log in to the cloud database via command, it's suggested to check if there are any errors in the database login account and password.

When entering the command: `mysql -h <private IP address> -u <username, default is root> -P <port number, default is 3306> -p`, the account username and password used for login must be paired correctly. If you are using a non-root account to log in, you need to enter the password of the corresponding non-root account. The password will not be displayed as you input it on the CVM interface; it needs to be entered correctly in one go and confirmed with the Enter key. If you have forgotten the password, you can [reset the password](#) and then try again.

3. Review whether the DFW configuration is correct and whether the IP is restricted.

Configure outbound rules in the CVM DFW. **When the target configuration of the outbound rule is not set to 0.0.0.0/0 and the protocol port is not set to ALL**, the private IP and port of TencentDB for MySQL needs to be added to the outbound rule.

Configure inbound rules in the MySQL security group. **When the source configuration of the inbound rule is not 0.0.0.0/0 and the protocol port is not All**, the IP and port of CVM need to be added to the inbound rule.

For instructions, please see the [Security Group Configuration Problem Resolution](#).

4. Evaluate if the issue is network-related.

The CVM and MySQL must be in the same region and VPC network. Go to the [CVM Console](#) and [TencentDB for MySQL console](#) to verify. If they are not in the same VPC network, use [Switch Networks](#) to change the network of the MySQL instance to be the same as the CVM. If the CVM and MySQL are confirmed to be in the same region and VPC network and there are still reported network errors, please check whether there are restrictions on your local network.

5. Check whether there is an instance-related issue.

If the MySQL instance disk is full, it may affect database connectivity. It's recommended to expand the disk capacity.

For the procedure, please refer to [Adjusting Database Instance Specification](#).

When the error message "ERROR 1040(00000): Too many connections" is displayed, it indicates that the maximum number of connections for the current CDB instance has been reached. Common causes and solutions are as follows:

- i. If there are too many sleep threads, it's advised to decrease the values of the wait_timeout and interactive_timeout parameters via the console. For details, please refer to [Setting Instance Parameters](#).
- ii. If there are few sleep threads and no slow query accumulation, it's suggested to increase the value of the max_connections parameter via the console. For details, please refer to [Setting Instance Parameters](#).

Check whether the MySQL instance is in a "master-slave switch state", as connection attempts will fail if the MySQL instance is in the middle of a master-slave switch. After the switch has completed, connect using the command again.

Public Network Connection

Last updated : 2024-06-20 10:50:03

This document delineates the procedure for connecting to the database via the public network address of TencentDB for MySQL, using a CVM instance or any third-party application.

Background

In scenarios where the private network is inaccessible, a public network connection can be employed, provided that the TencentDB instance has [enabled public network access](#). We advise utilizing public network connections exclusively for development purposes or auxiliary database management.

Note:

The capability to enable public network addresses is currently supported for primary instances in regions including Guangzhou, Shanghai, Beijing, Chengdu, Chongqing, Nanjing, Hong Kong (China), Singapore, Seoul, Tokyo, Silicon Valley, Virginia, and Frankfurt. For the most up-to-date information about which regions support enabling public network addresses for read-only instances, please refer to the console.

To enhance the security and reliability of the public network link for databases, starting from May 2024, TencentDB for MySQL will use CLB as its underlying architecture for public networks. Once the public network is enabled, a new CLB instance will be added to your resources (this CLB instance is automatically created due to the activation of the public network address and you can Try for free). When the public network address is disabled, this CLB instance will be automatically deleted. You can also configure monitoring and alerting items for this CLB instance. For more information, please see [Enable Public Network Connection Address](#).

Connection Methods	Application Scenario	Description	Billing Status
Private Network Connection	The CVM and TencentDB for MySQL instances are in the same VPC in the same region under the same Tencent Cloud root account. For specifics, please refer to Scenario 1 .	The private network provides high-speed connectivity and low latency.	No charge at the present time.
Public Network Connection	<p>In scenarios where private network connections are unavailable, you can use public network connections. For more details, please see Scenario 2.</p> <p>Note:</p> <p>Public network connections may be susceptible to network issues. If you have high network requirements, we</p>	<p>Third-party application connection services are supported.</p> <p>The public network address must be manually enabled.</p> <p>Enabling the public network address will expose your database services to the public network, which may</p>	No charge at the present time.

	recommend using private network connections or CCN Connections .	lead to database intrusions or attacks. Public network connection to TencentDB is suitable for development or auxiliary management of databases but not recommended for business access in the production environment, owing to potentially uncontrollable factors that may lead to unavailability of the public network connection, such as DDoS attacks and bursts of high-traffic access.	
CCN Connection	In the instance where the CVM and MySQL are located in different VPCs or if the LIGHTHOUSE is used for establishing the connection with MySQL, please refer to Scenario 3 for more specific details.	Public and private network interconnection. Low latency, high-speed transmission.	CCN Billing Information

Preparations

Ensure that the MySQL instance is well-prepared. For detailed guidance, please refer to [Creating MySQL Instance](#).

Ensure that the CVM is ready. For further instructions, refer to [Customizing Configuration of Linux CVM](#).

[Enable public access](#) for the MySQL instance.



DFW Settings: Open the private network ports.

Add inbound rule

Type	Source ^①	Protocol:port ^①	Policy	Remark
MySQL(3306)	<div>IP address or CIDR block</div> <div>all</div>	TCP:3306	Allow	MySQL service(3306) oper
+ New line				

OK
Cancel

Note:

After enabling public network access, the instance is subjected to the rules of the DFW network access policies. While configuring security policies, **you must open the private network access port 3306**. If unsure about the private network port number, you can check it on the instance details page in the console. For detailed steps, please refer to [Manage TencentDB DFW](#).

Operation Guide

[Connecting to CDB from a CVM over a Public Network](#)

[Connecting to CDB from a Third-party Application over a Public Network](#)

Connecting to a CDB from a CVM over a Public Network

Step 1: Log in to CVM

1. Log in to the [CVM Console](#), find the target CVM in the instance list and click **Log In** in the actions column on the right.

<input type="checkbox"/> ID/Name	Monitoring	Status ▾	Availability zone ▾	Instance type ▾	Instance configuration	Primary IPv4 ^①	Instance billing mode ▾	Network
<input type="checkbox"/> ins- [redacted]		Running	Hong Kong Zone 2	Standard SA2	2-core 2GB 5Mbps System disk: Balanced SSD Network:	[redacted].36 (Public) [redacted].7 (Private)	Pay-as-you-go Created at 2022-11-15 00:04:17	Bill by tr

2. In the **Login** window, choose password login, enter the username and password of the CVM, and click **Log In** to successfully access. As illustrated below:

Log in

AUTO SSH

Instance name/ID

User name: root

Port: 36000

Instance IP: ☒ 178(Public) ☐ .6(Private)

Verification method: ☒ Password ☐ Key ☐ Secret

Password: Enter a password [Forgot password?](#)

Log in

[Log in via VNC](#)

☒ Save the login information for quick login. [How to log in quickly](#)

- Make sure the remote login port used by [OrcaTerm proxy IPs](#) is allowed in

[Browse All Notices](#)

- For troubling shooting, see : [Unable to Log in to a Linux Instance](#)

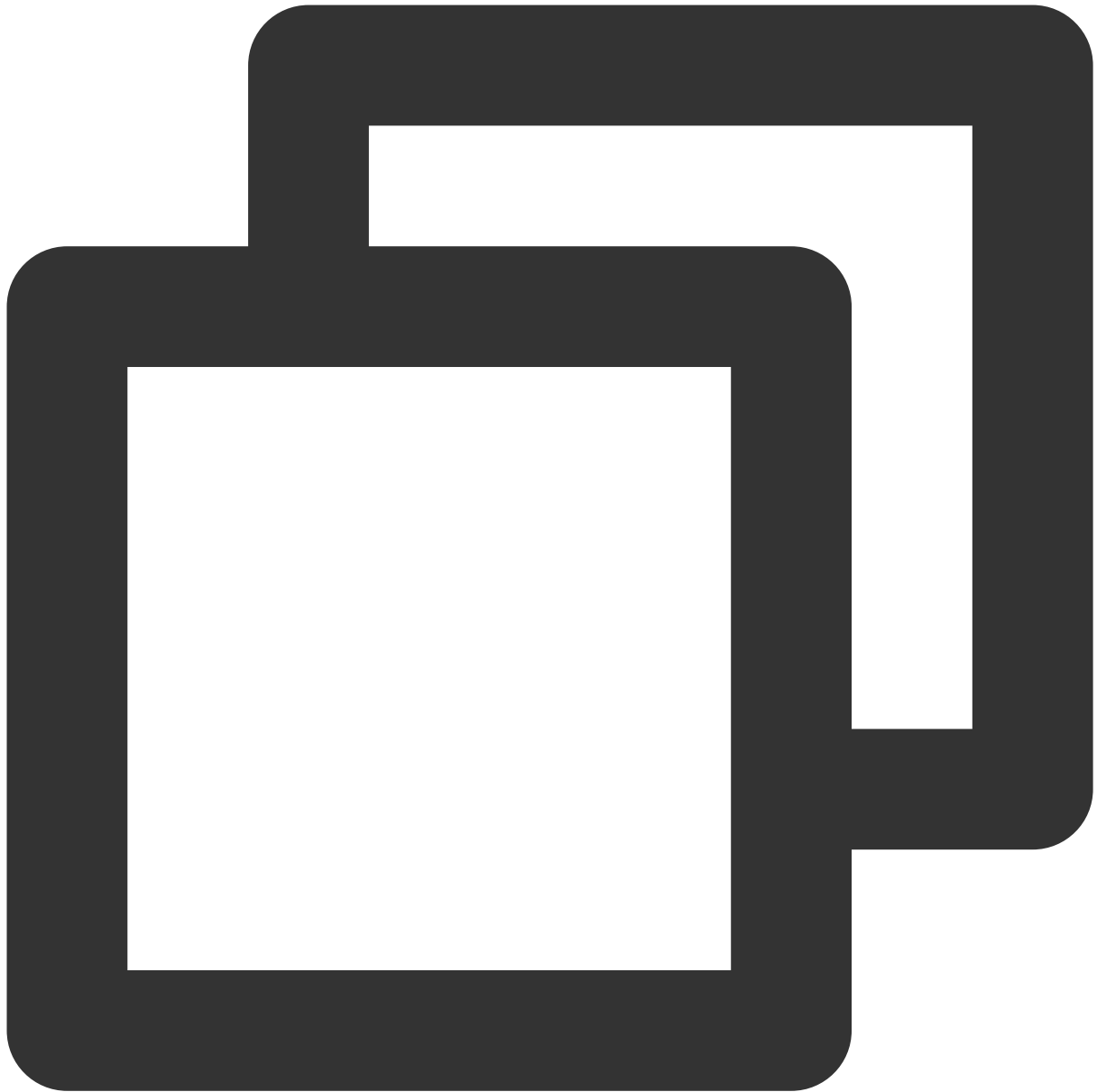
3. Upon successful login, the interface appears as illustrated below:

```
Welcome to TencentOS 3 64bit
Version 3.1 20221031
tlinux3.1-64bit-5.4.119-19.0009-20221031
Last login: Thu Aug 31 14:50:13 2023 from [redacted]
[root@VM-0-5-tencentos ~]#
```

Login succo

Step 2: Install MySQL Client (Skip step if previously installed on this CVM)

Run the following command to install MySQL Client:

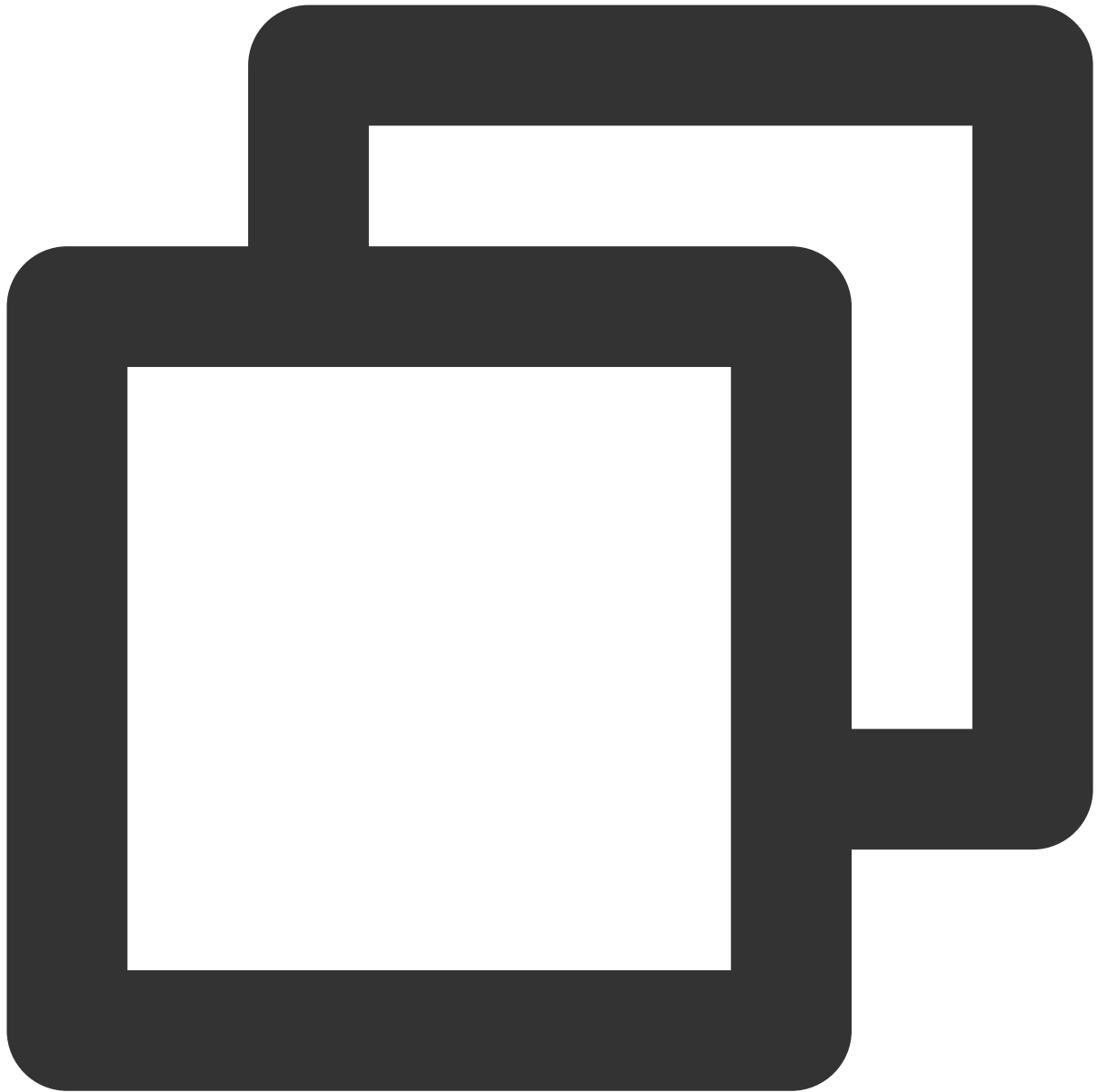


```
yum install mysql
```

If `Complete!` is displayed, the MySQL client is installed successfully.

Step 3: Connect to TencentDB using CVM

1. Execute the following command in the CVM to log in to the MySQL database instance.



```
mysql -h <public IP address> -u <username, default is root> -P <public port number>
```

<public IP address>: Replace it with the public network address of the target MySQL database instance, which can be viewed on the instance details page in the [MySQL console](#). If the public network address is not enabled, please refer to [Enabling Public Network Address](#).

Instance ID: cdb-...

Region/AZ: North China(Beijing) / Beijing Zone 5 [Migrate to New AZ](#)

Private Network Address: ...

Public Network Address: bj-cdb-...ql.tencentcdb.com

Port: 3306

Port: 63748

<Username, default is root>: Replace with the account name of your target MySQL database instance. The default account name is 'root'.

Account Name	Host	Maximum Connections	Remarks
root	%	--	--
te...	%	--	--

2 in total

<public port number>: Replace it with the public port number of the target MySQL database instance, which can be viewed on the instance details page in the [MySQL console](#).

Instance ID: cdb-...

Region/AZ: North China(Beijing) / Beijing Zone 5 [Migrate to New AZ](#)

Private Network Address: ...15

Public Network Address: bj-cdb-...ql.tencentcdb.com

Port: 3306

Port: 63748

2. Enter the password corresponding to the MySQL instance's account after the prompt `Enter password:`. If you forgot the password, you can modify it as per [Resetting Password](#).

If `mysql>` is displayed, it signifies a successful login to MySQL.

```
[root@VM-0-5-tencentos ~]# mysql -h[REDACTED] -u root -P 6
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 1985
Server version: 8.0.30-txsql 20221220

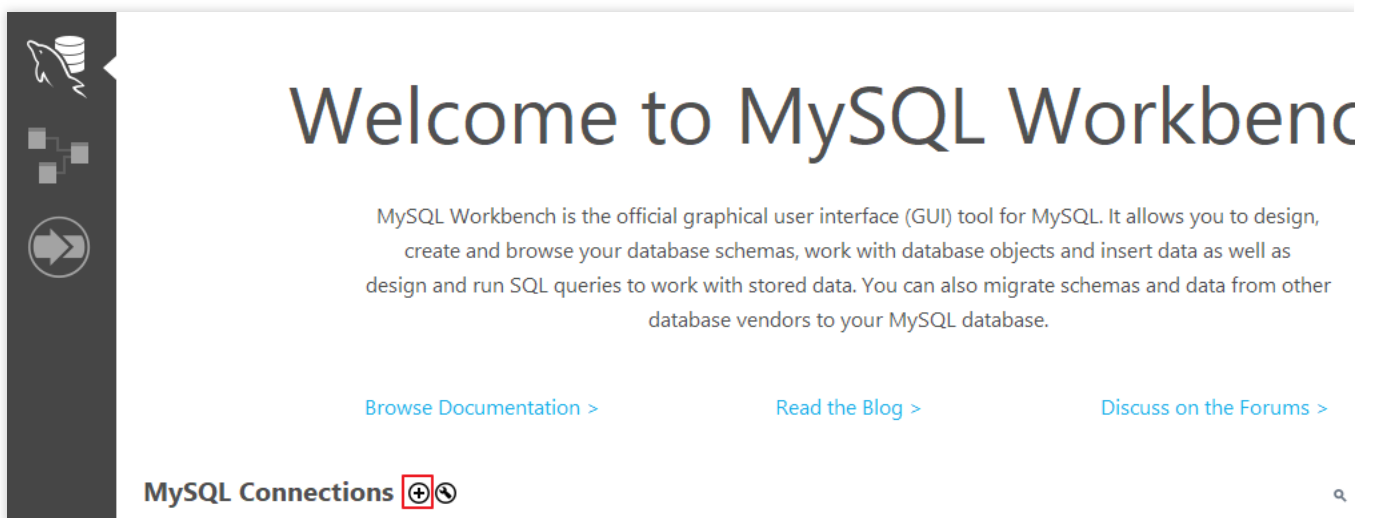
Copyright (c) 2000, 2021, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

Connecting to CDB from a Third-party Application Over the Public Network

1. Download MySQL Workbench from the [MySQL Workbench](#) official download page and install it.
2. Navigate to the download page and select **MySQL Workbench**.
3. Once redirected, under Windows (x86, 64-bit), MSI Installer, click **Download**.
4. Click **No thanks, just start my download**.
5. Upon finishing the installation, open MySQL Workbench. In the MySQL Connections section, click the plus sign to add the instance to be connected.



6. In the pop-up window, configure the following items and click **OK**.

Setup New Connection

Connection Name: Type a name for the connection.

Connection Method: Standard (TCP/IP) Method to use to connect to the database.

Parameters SSL Advanced

Hostname: Port: Name or IP address of the server host. The port is the TCP/IP port.

Username: Name of the user to connect with.

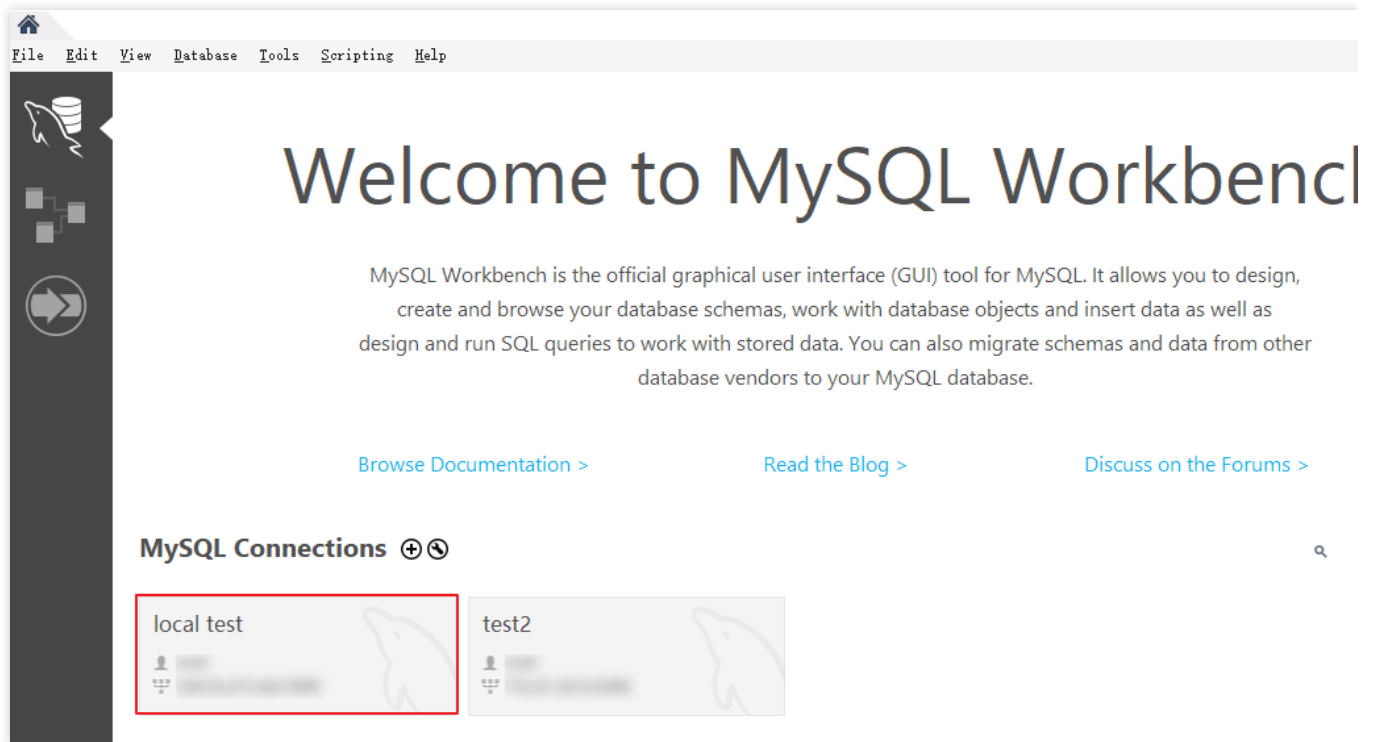
Password: Store in Vault ... Clear The user's password. Will be requested if not set.

Default Schema: The schema to use as default schema. If blank, select it later.

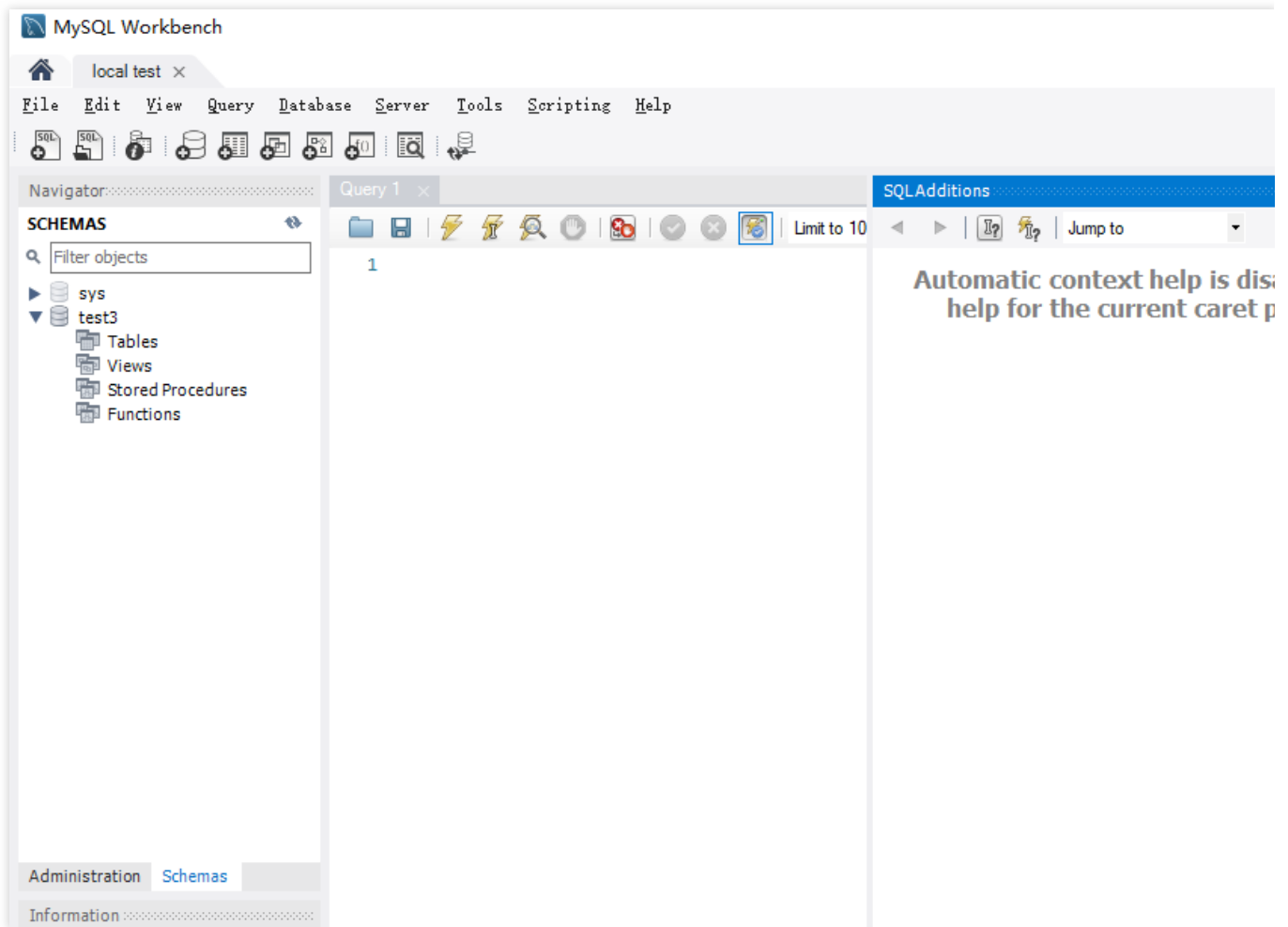
Configure Server Management... Test Connection Cancel

Parameter	Description
Connection name	Assign a name to this connection.
Connection Method	Connection method, select Standard(TCP/IP).
Hostname	Enter the public network address of the CDB instance. The public network address can be found on the instance detail page.
Port	Enter the public network port number of the CDB Instance. The port number can be found on the Instance Details page.
Username	Enter the username of the MySQL instance to be connected.
Store in Vault...	Enter and save the password for the MySQL instance you wish to connect.

7. Navigate back to the MySQL Workbench homepage and select the newly created instance information to establish a connection to the MySQL instance.



8. The UI after successful connection is as follows:



FAQs

Does it cost to connect to the public network?

Connection to the public network is currently available free of charge.

Why is it necessary to open the MySQL private port for a public network connection?

When the TencentDB instance enables a public network address, it is accessed via Tencent Cloud's backend cluster that connects to the database's private network port. This connection requires port mapping and forwarding to facilitate public network access. Therefore, after enabling the public network address, the MySQL private port needs to be opened in the DFW for backend cluster connections.

Is it possible to change the public network port?

Modifications are not supported.

How secure is the public network connection?

Enabling public network access will expose your database services to the open internet, which may pave the way for database intrusions or attacks. It is generally advised to use the [private network for database connection](#). Public network connection to TencentDB is primarily used for development or auxiliary database management and is not recommended for mainstream business access, as potential uncontrollable factors may render the connection unavailable, including DDoS attacks and unexpected high-volume traffic.

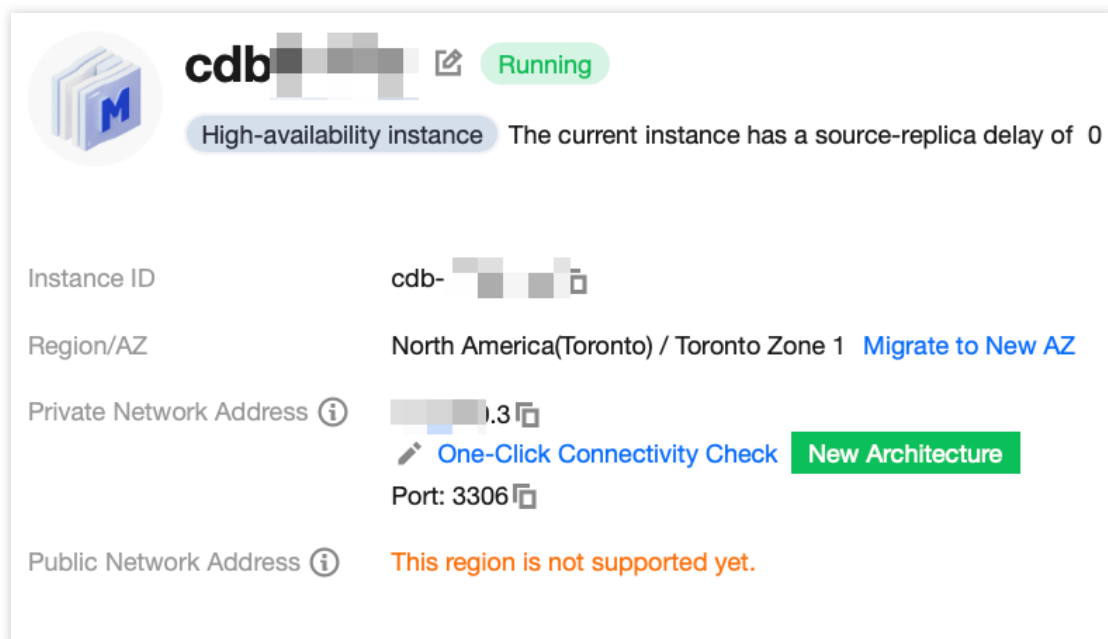
After enabling a public network address, how can I limit connections to specific IPs and restrict access from all other IPs?

By imposing restrictions on host permissions, you can modify the authorized host addresses for your database account through the TencentDB console, thus limiting database access. For more information, please refer to [Modifying Host Addresses with Access Permissions](#).

Alternatively, you might consider using a public CLB for traffic forwarding to enable public network access. Access restrictions can be imposed by using DFW policies in CLB. For more information, please refer to [Enabling Public Network Access Through CLB](#).

Why am I unable to enable public network access?

Public network access can be enabled for main instances deployed in Guangzhou, Shanghai, Beijing, Chengdu, Chongqing, Nanjing, Hong Kong (China), Singapore, Seoul, Tokyo, Silicon Valley, Virginia, and Frankfurt. For the latest information about the regions where public network access can be enabled for read-only instances, please refer to the console. If your instance is deployed in a region where public network access is not supported, public network access cannot be enabled.



The screenshot displays the TencentDB console interface for a MySQL instance. At the top, there is a header bar with the instance icon (a blue 'M' in a circle), the instance name 'cdb-...', a status indicator 'Running' in a green pill, and a 'High-availability instance' label. Below this, a message states 'The current instance has a source-replica delay of 0'. The main content area lists instance details: 'Instance ID' is 'cdb-...', 'Region/AZ' is 'North America(Toronto) / Toronto Zone 1' with a 'Migrate to New AZ' link, 'Private Network Address' is '...3' with an information icon, a 'One-Click Connectivity Check' link, and a 'New Architecture' button. The 'Port' is '3306'. The 'Public Network Address' field shows a message: 'This region is not supported yet.' with an information icon.

How can I troubleshoot public network connectivity errors by myself?

Possible causes for failing to connect to a database through a public network address often involve scenarios related to account passwords, ports, DFW, networks, and instance issues. The following content provides methods for self-

diagnostics in various scenarios.

1. After logging into the CVM instance, if you repeatedly fail to log in to the cloud database via command, it's suggested to check if there are any errors in the database login account and password.

In the command line: `mysql -h <public IP address> -u <username, default: root> -P <public port number> -p`, the account and password used for login must correspond correctly. If you are logging in with a non-root account, you also need to input the password for the corresponding non-root account. The password will not be displayed as you type it in the CVM interface. You must enter it correctly in one go and press the enter key. If you forget your password, you can [reset your password](#) and try again.

2. Review whether the DFW configuration is reasonable and whether the IP is restricted.

Configure outbound rules in the CVM DFW. When the outbound rule is not set to 0.0.0.0/0 and the protocol port is not set to ALL in the **target configuration of outbound rules**, you need to add the external IP and port of MySQL to the outbound rules.

Configure inbound rules in the DFW of MySQL. When the source configuration of the inbound rule is not set to 0.0.0.0/0 and the protocol port is not set to ALL in the **inbound rules**, you need to open the internal port of the MySQL instance in the inbound rules. The default is 3306.

For instructions, please see the [DFW Configuration Problem Resolution](#).

3. Evaluate if the issue is network-related.

Connecting to the database over the public internet could fail due to various reasons such as unstable network, local network restrictions, or VPCs bound with [ACL](#) policies. In this case, switch your local network, remove relevant restrictions, and try again. We recommend using [private network to connect to the database](#) for a more reliable and low-latency experience.

4. Examine whether there is an instance-related issue.

If the MySQL instance disk is full, it may affect database connectivity. It's recommended to scale the disk capacity. Refer to [Adjusting Database Instance Specification](#) for the procedure.

When the error message "ERROR 1040(00000): Too many connections" appears, this indicates that the maximum number of connections for the current Cloud database instance has been exceeded. Common causes and solutions include:

- i. If there are too many sleep threads, it's advised to decrease the values of the `wait_timeout` and `interactive_timeout` parameters via the console. Refer to [Setting Instance Parameters](#) for this action.
- ii. If there are few sleep threads and no slow query accumulation, it's suggested to increase the `max_connections` parameter value via the console. Refer to [Setting Instance Parameters](#) for this action.

Verify if the MySQL instance is in a "master-slave switch state", as connection attempts can fail if the MySQL instance is in the middle of a master-slave switch. After the switch has completed, resume connection attempts using the command.

CCN Connection

Last updated : 2023-12-27 10:05:39

This document describes the method to connect to a database by using CCN.

Background

Once a MySQL instance is created, if the CVM and instance reside in different VPCs (including both same/different accounts and same/different regions), a CCN can be utilized to connect to the database. Under the same Tencent Cloud account, if the purchased server is a [Lighthouse](#), it employs a [Virtual Private Cloud\(VPC\)](#) allocated automatically by Tencent Cloud for network isolation. By default, the private network is not interconnected with the MySQL in the VPC of the private network, thus direct access to the CDB via Lighthouse cannot be achieved. A connection to the database can be accomplished by using a CCN.

Connection Methods	Application Scenarios	Description	Billing
Private Network Connection	The CVM and TencentDB for MySQL instances are in the same VPC in the same region under the same Tencent Cloud root account. For details, please refer to Scenario 1 .	The private network provides high-speed connectivity and low latency.	No charge currently
Public Network Connection	<p>In scenarios where private network connections are unavailable, you can use public network connections. For details, please see Scenario 2.</p> <p>Note:</p> <p>Public network connections are more susceptible to network performance. If you have high network requirements, it is advisable to use Private Network Connection or CCN connection.</p>	<p>Third-party application connection services are supported.</p> <p>The public network address must be manually enabled.</p> <p>Enabling the public network address will expose your database services to the public network, which may lead to database intrusions or attacks.</p> <p>Public network connection applies to development or auxiliary management of databases but is not recommended for formal business access scenarios. Because the potentially uncontrollable factors may lead to unavailability of the public network connection, such as DDoS attacks and bursts of high-traffic access.</p>	No charge currently

CCN Connection	This connection method applies when the CVM and MySQL are under different VPCs or if the Lighthouse is used for establishing the connection with MySQL. For details, please refer to Scenario 3 .	Whole network is interconnected. Provides low latency and high-speed transmission.	CCN Connection Billing
----------------	---	--	--

Preparations

Ensure that the MySQL instance is well-prepared. For detailed guidance, please refer to [Creating MySQL Instance](#). Prepare your CVM instance. This document uses Lighthouse as an example. For more information, see [Quickly Creating a Linux Lighthouse](#).

Precautions

The Lighthouse internal network interconnection function is provided for free, you only need to pay attention to the billing information of the CCN product. For details, see [CCN Pricing Overview](#). For bandwidth within the same region below 5 GB/s, the service is free. For cross-region private network interconnection, you need to purchase [Non-Cross-Border Bandwidth](#) in CCN.

Lighthouse does not support cross-border private network interconnection through associating CCN, even if cross-border bandwidth has been purchased for that CCN.

Under the same account:

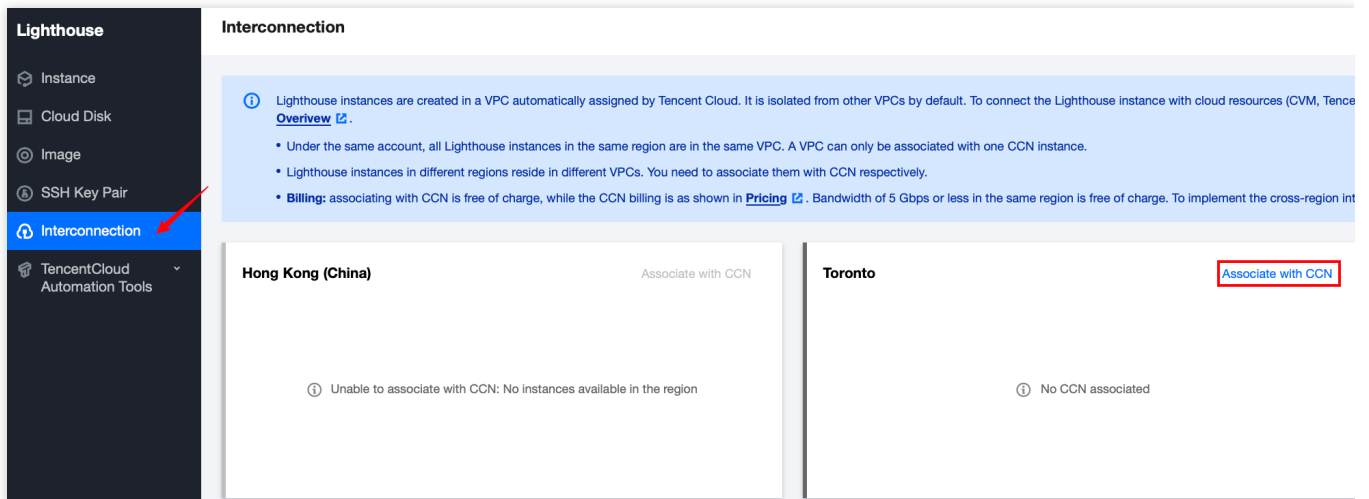
All Lighthouse instances within the same region are housed within the same VPC. A single VPC can only be associated with one CCN simultaneously.

Lighthouse instances in various regions reside in distinct VPCs, and each VPC must be independently associated with the CCN.

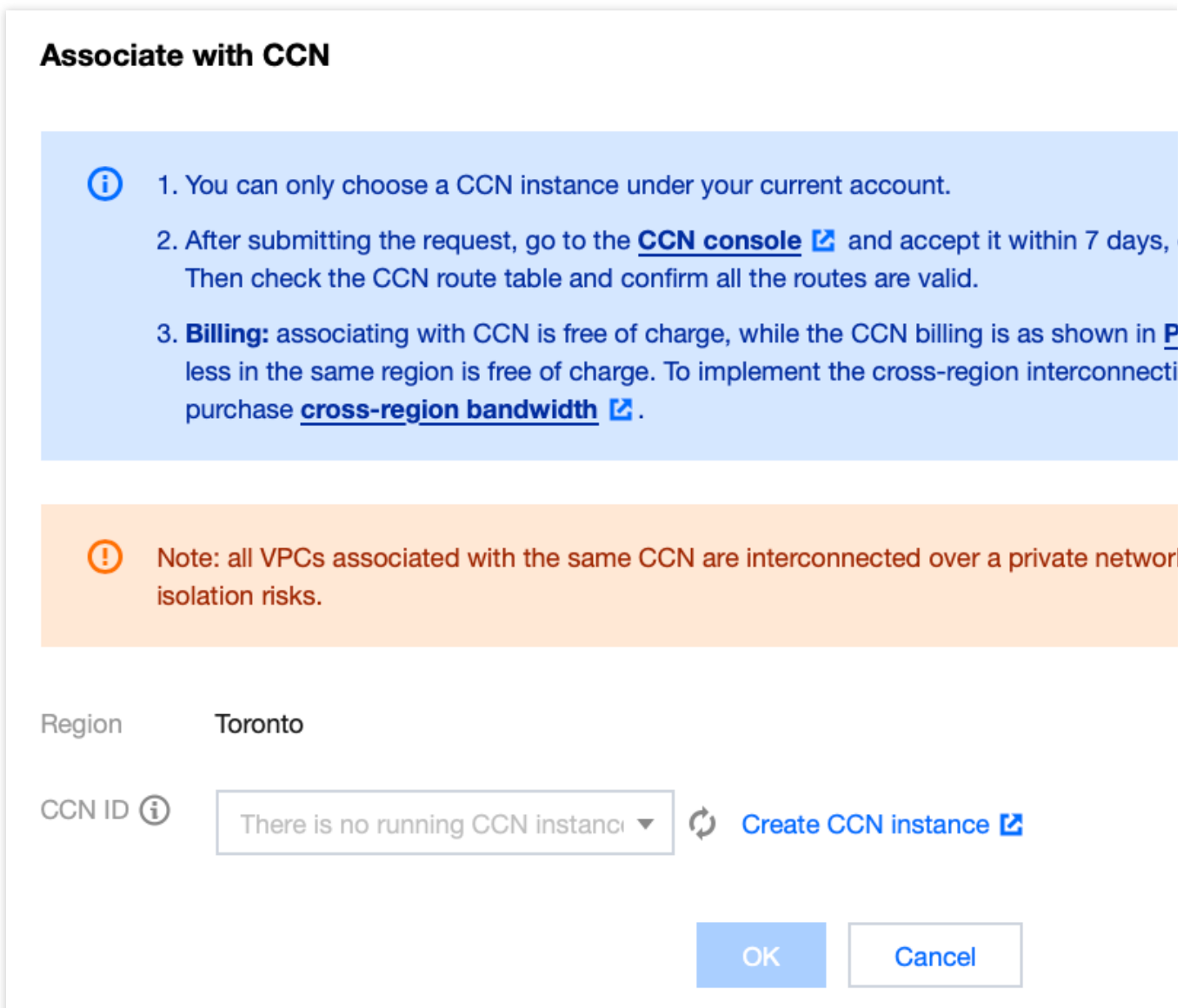
If there are no Lighthouse instances in a given region, users cannot undertake the task of associating a CCN within that particular region.

Operation Guide

1. Log into the [Lighthouse console](#) and select Interconnection from the left-hand navigation bar.
2. Select the region where your MySQL instance resides and apply for **CCN Association**.



3. In the displayed **CCN Association window**, select **Create CCN instance**.



4. Complete the creation of the CCN instance in the pop-up, return to the CCN association page in Lighthouse Interconnection, refresh to view the new CCN instance, and then click **OK**.

Note:

Only CCN under the same account can be associated.

Upon submitting the association application, please log in to the [CCN console](#) within seven days to approve the application. Otherwise, the application expires after seven days and you need to submit a new association application.

5. Log in to the [CCN console](#), and click the ID/Name of the target CCN to navigate to its details page.

6. On the CCN Details page, locate the row containing the association application and click **Agree** on the right side.

By default, the Lighthouse VPC instance will be labelled as "Lighthouse VPC". Please ensure to make the correct selection.

7. In the dialog box, add the VPC network address of the target MySQL, click on New Instance, choose the region, VPC, and then click **Confirm**. Then, on the intranet interconnection page, the status of this region will be displayed as "Connected".

8. Navigate back to the [Lighthouse console](#), refresh the intranet interconnection interface; a successful connection will be displayed.

9. In the [CCN console](#), click on the ID of the target CCN to enter the CCN details page to check whether the route is active. If any enabled route is found in a deactivated state, please activate it.

10. In the [Lighthouse console](#), locate the target Lighthouse, click **Log in**, choose password login, enter your username, port, and password, then click **Log in** once more.

Log in

Auto

Password

Key

Instance name/ID

mi

Instance IP

☒ 76(Public)

User name

root

Port

22

Password

Enter a password

[Forgot password?](#)

Log in

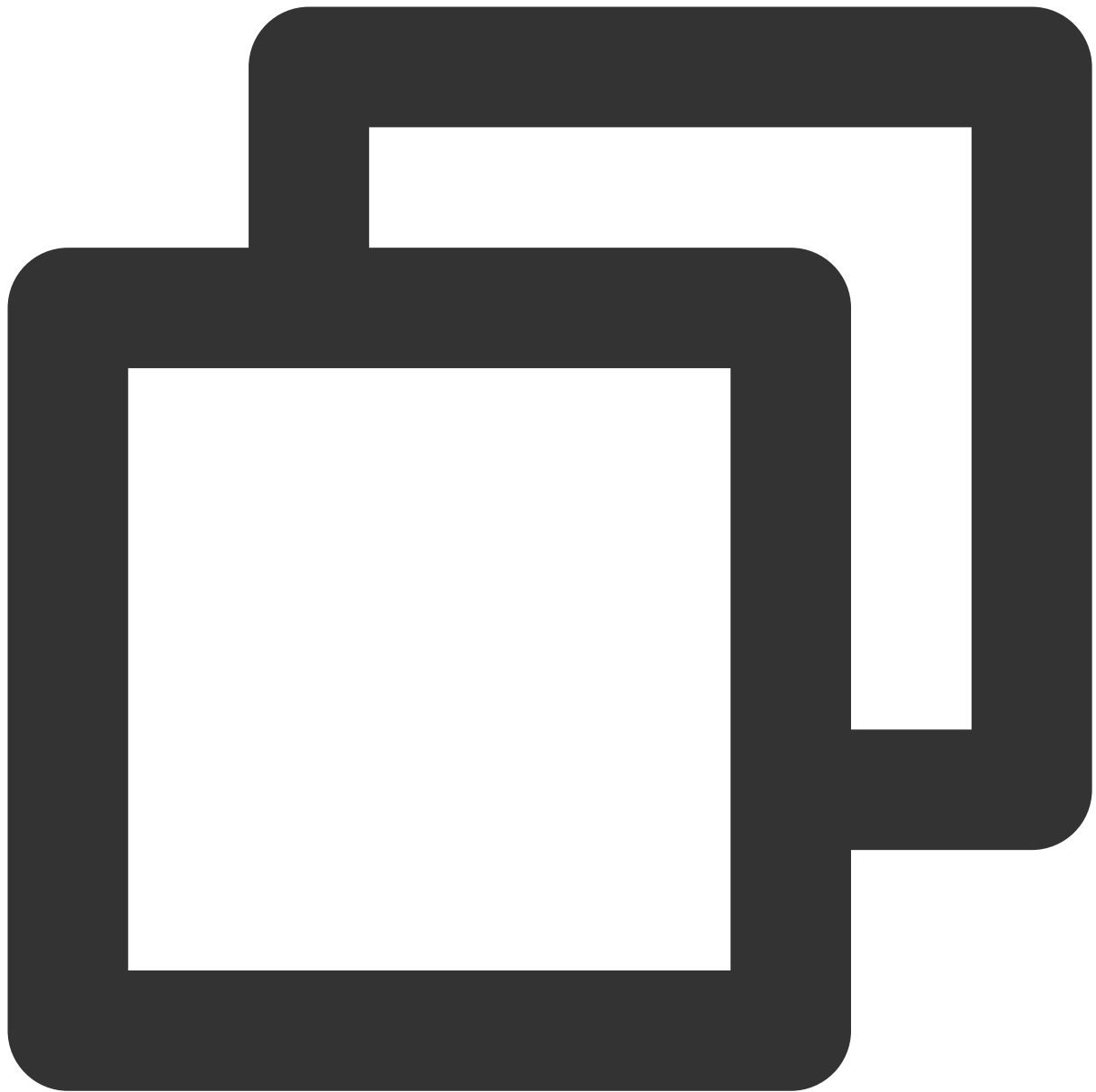
☒ Save the login information to the connection configuration page for quick login next time. [How to log in quickly](#)

- Make sure the remote login port used by [OrcaTerm proxy IPs](#) is allowed in Firewall.

[Learn more](#)

11. Upon successful login, run the following command to download and install MySQL.

Method 1 (If Method 1 fails, proceed with Method 2):



```
yum install mysql -y
```

```
[root@VM-16-14-centos ~]# yum install mysql -y
Loaded plugins: fastestmirror, langpacks
Repository epel is listed more than once in the configuration
Loading mirror speeds from cached hostfile
Resolving Dependencies
--> Running transaction check
--> Package mariadb.x86_64 1:5.5.68-1.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

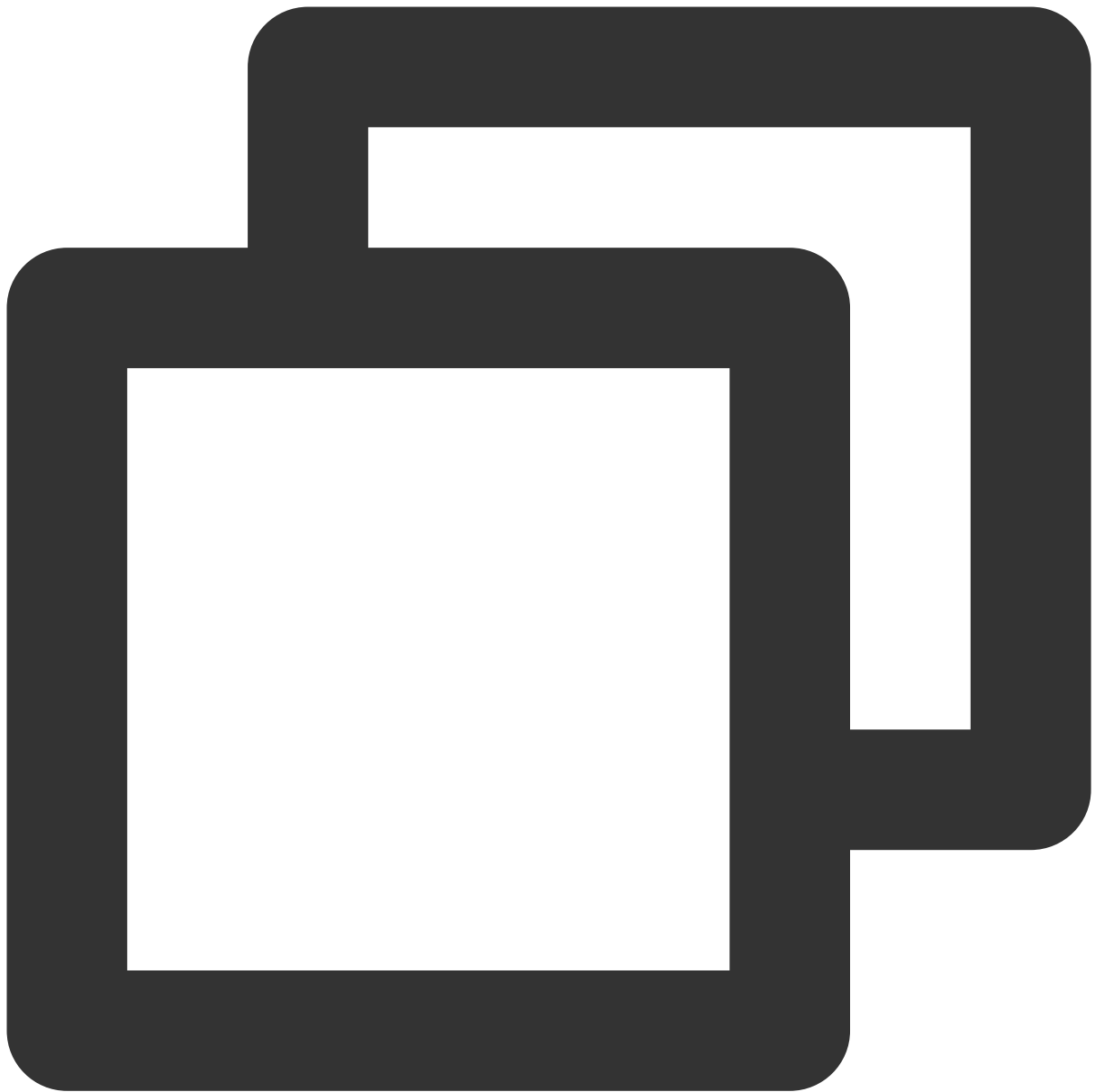
=====
Package                                Arch                                Version                                Repos
=====
Installing:
mariadb                                x86_64                              1:5.5.68-1.el7                        os

Transaction Summary
=====
Install 1 Package

Total download size: 8.8 M
Installed size: 49 M
Downloading packages:
mariadb-5.5.68-1.el7.x86_64.rpm
```

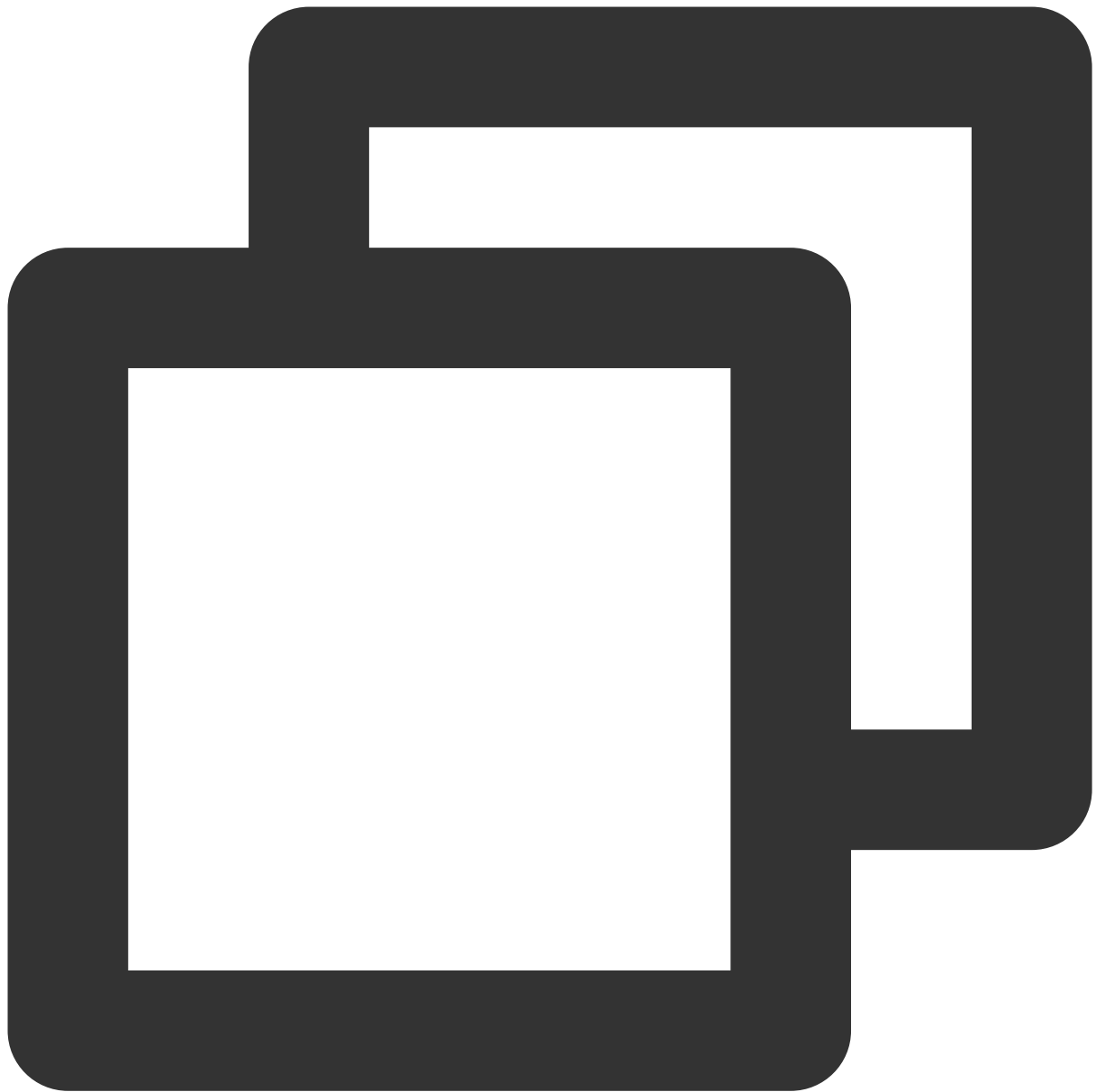
Method 2 (If Method 1 succeeds, you can ignore Method 2):

Run the following command to download and install MariDB.



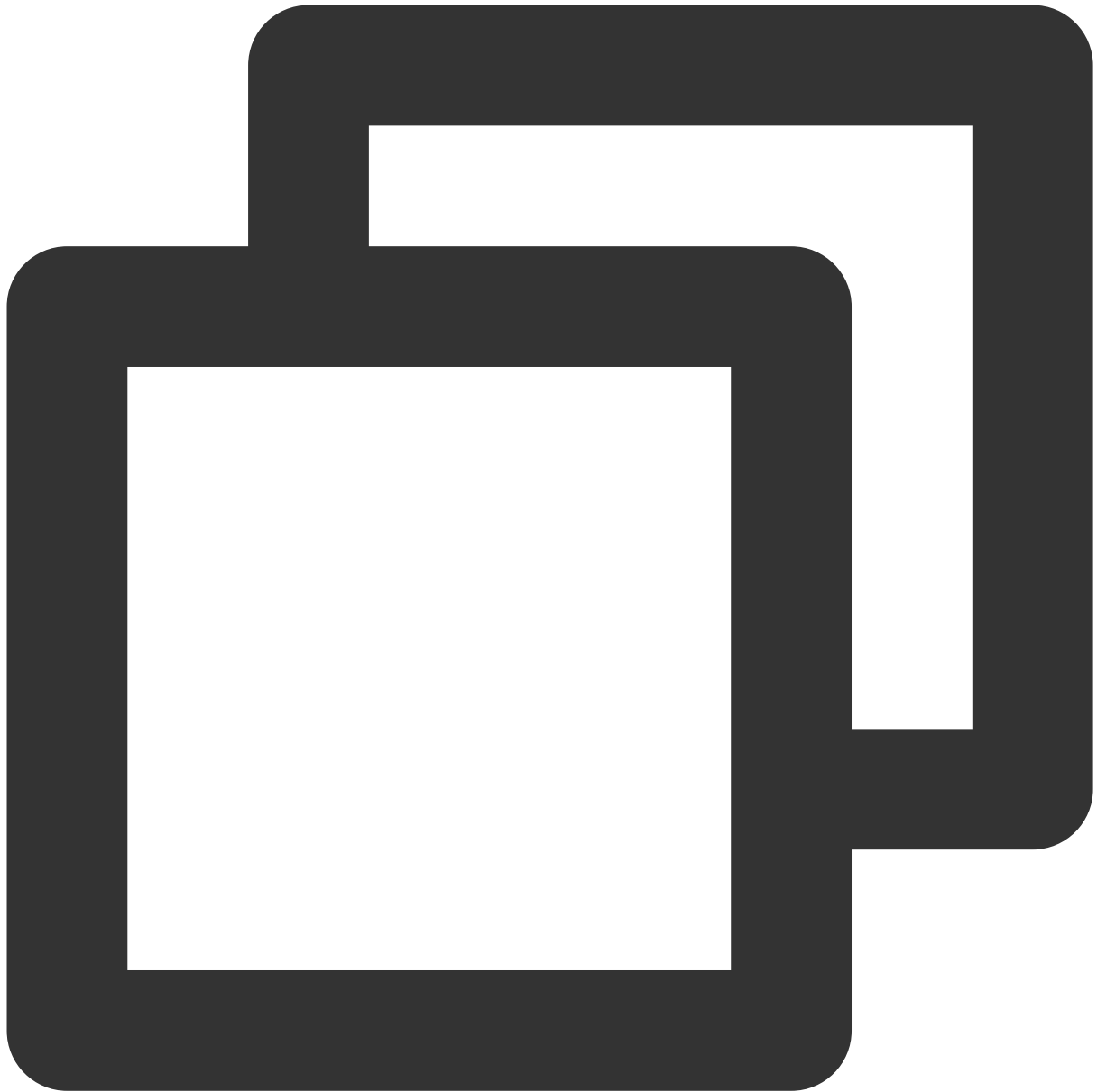
```
yum -y install mariadb-server
```

Upon successful installation, run the following command to start MariaDB. Then, you can use MySQL.



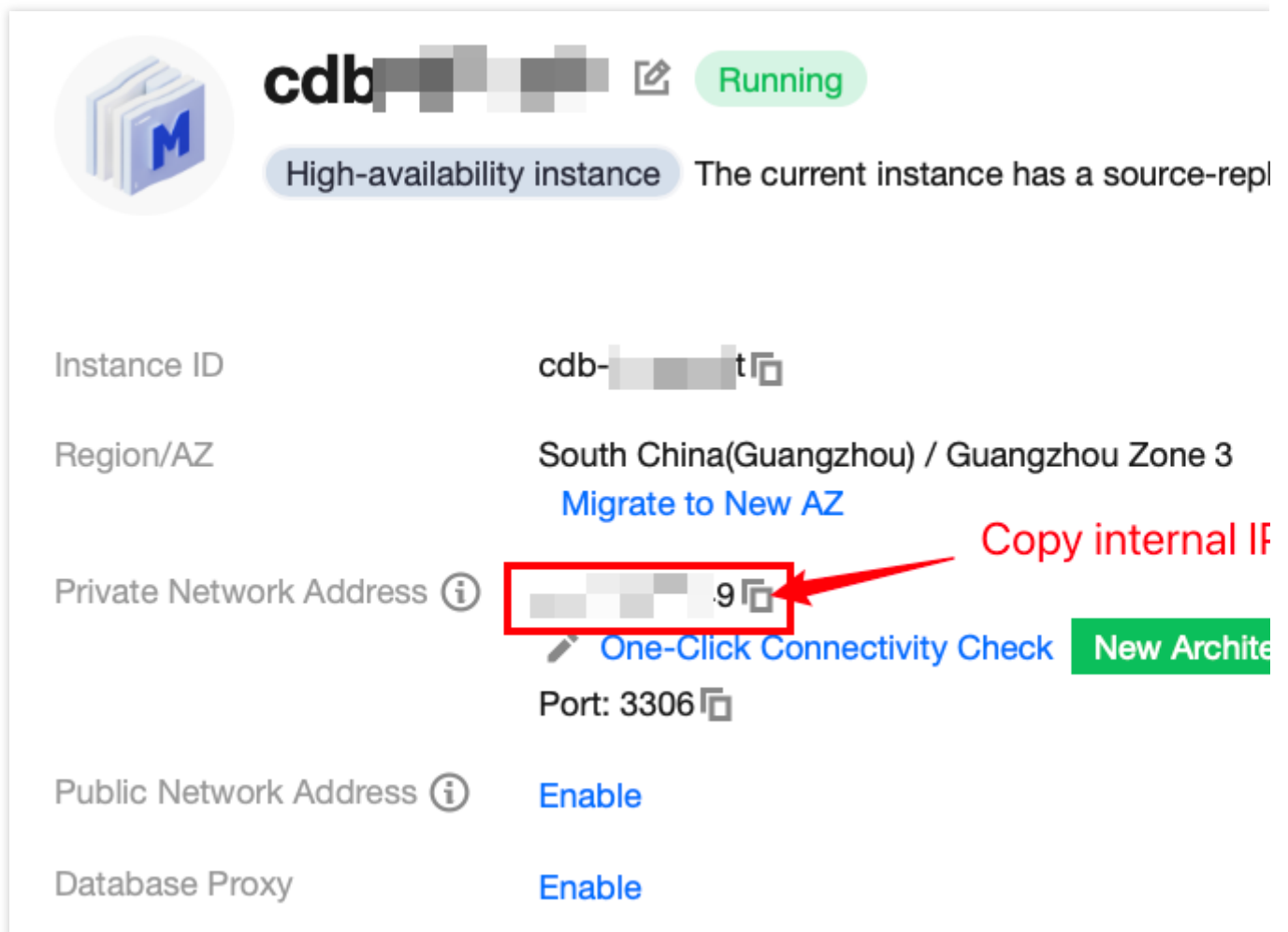
```
systemctl start mariadb
```

12. Run the following command to connect and log in to MySQL.



```
mysql -h <internal IP address> -u <username, default is root> -P <port number, defa
```

<Private network IP address>: Replace it with the private network address of your target MySQL instance, which can be viewed on the instance details page in the [TencentDB for MySQL console](#).



Instance ID: cdb-...

Region/AZ: South China(Guangzhou) / Guangzhou Zone 3

Private Network Address: ...9

Port: 3306

Public Network Address: Enable

Database Proxy: Enable

High-availability instance

The current instance has a source-repl...

Copy internal IP

One-Click Connectivity Check

New Architecture

<Username, default is root>: Replace it with the account name of your target MySQL instance. The default account name is 'root'.

Database List

Parameter Settings

Account Management

Create Account

Export Account

Password Complexity: [Disable]

Use Dynamic Credentials ⓘ

Please be sure to set a password. If you forget your password, you will not be able to log in.

Account Name	Host	Maximum Connections	Remarks
root	%	--	--
test	%	--	--

2 in total

<Private network port number>: Replace it with the private network port number of the target MySQL database instance. The default is 3306. If the port number has been changed, the new port number can be viewed on the instance details page in the [TencentDB for MySQL console](#).



13. Upon successful connection, the interface displays as follows:

```
[root@VM-16-14-centos ~]# mysql -h[redacted] -u root -P 3306 -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 3015
Server version: 8.0.30-txsql 20221220

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]>
```

FAQs

Do I have to pay for CCN connections?

Yes. You should pay for CCN connections. For details, see [CCN Billing Details](#).

Under what circumstances should a CCN be used to connect to a MySQL?

1. CCN can be used to connect to the database when the CVM and MySQL instances are in different VPCs, no matter under the same or different accounts, or in the same or different regions.
2. If you have purchased a [Lighthouse](#) server, you can connect to the database only through [CCN](#).

How can private network interconnection be achieved when using Lighthouse instances?

Lighthouse uses the VPC automatically assigned by Tencent Cloud for network isolation. By default, the private network does not interconnect with other Tencent Cloud resources in VPCs such as CVM and TencentDB. The

interconnection can be implemented by associating with a CCN. For more information, please refer to [Private Network Interconnection](#).

Note:

Lighthouse only supports associating with CCNs under the same account and does not support the association across different accounts.

What is the service level of CCN?

Tencent Cloud CCN offers three levels of availability: Platinum, Gold, and Silver.

The service level for all intra-region instances is Gold, and cannot be modified.

During cross-region intercommunication, three service levels—Platinum, Gold, and Silver—are available for you to choose from upon CCN creation. The costs differ with the service level. You can select the most suitable one based on your business requirements. For more information, see [Pricing](#).

How do I troubleshoot a CCN connection error myself?

1. Check whether the route table for the CCN is valid by following the following steps:

1.1 On the "Private Network Interconnection" page, click the "CCN ID" on the regional card to navigate to the details page of that CCN.

1.2 On the CCN details page, select the **Route Table** tab.

1.3 You need to ensure that the newly added route is marked as "Valid". If there are CIDR conflicts, the route could be invalid.

Note:

If you need to utilize an invalid route, see [Disabling a Route](#) and [Enabling a Route](#). For Conflict rules and restrictions, see [Route Limits](#).

2. Upon logging in to Lighthouse, if you repeatedly fail to log into the cloud database via the command, you may need to check whether the username or password used for database access are correct.

In the command line: `mysql -h <private ip address> -u <username, default root> -P <port number, default 3306> -p`, the account and password must be paired correctly. If you're logging in with a non-root account, then the password should also correspond to the non-root account. When entering your password in the Lighthouse interface, the password will not be displayed as you type. Enter it correctly all at once and press Enter. If you forget the password, you may [reset the password](#) and try again.

3. Check whether there is an instance-related issue.

If the MySQL instance disk is full, it may affect database connectivity. It's recommended to expand the disk capacity. For the procedure, please refer to [Adjusting Database Instance Specification](#).

When the error message "ERROR 1040(00000): Too many connections" is displayed, it indicates that the maximum number of connections for the current CDB instance has been reached. Common causes and solutions are as follows:

i. If there are too many sleep threads, it's advised to decrease the values of the `wait_timeout` and `interactive_timeout` parameters via the console. For details, please refer to [Setting Instance Parameters](#).

ii. If there are few sleep threads and no slow query accumulation, it's suggested to increase the value of the `max_connections` parameter via the console. For details, please refer to [Setting Instance Parameters](#). Check whether the MySQL instance is in a "master-slave switch state", as connection attempts will fail if the MySQL instance is in the middle of a master-slave switch. After the switch has completed, connect using the command again.

FAQs on Connectivity

Last updated : 2023-12-27 10:11:11

This document outlines common issues associated with connecting to a TencentDB for MySQL instance through different connection methods including private network connection, public network connection, and CCN connection.

Common Issues

Common Issues with Private Network Connection

Common Issues with Public Network Connection

Common Issues with CCN Connection

Common Issues

Regardless of which method is used to connect to the database, the following issues are likely to occur. If the connection fails, please first check and locate the fault based on the following instructions during self-check.

Account Password Issue

Upon repeated failures to log into TencentDB using commands after logging into CVM, please check whether the account or password used to log into the database is correct.

In the command `mysql -h <public/private IP address> -u <username, default is root> -P <public/private port number> -p`, the account and password used to log in must be correctly paired. If you are using a non-root account to log in, you should also enter the corresponding password for the non-root account. When entering the password on the CVM interface, the password will not be displayed as you type. It should be entered correctly in one go and confirmed by pressing the Enter key. If you forget the password, you can [reset the password](#) and then try again.

MySQL Instance Issue

If the MySQL instance itself is faulty, the connection may fail. You can check for the following issues related to the instance.

If the MySQL instance disk is full, it may affect database connectivity. It's recommended to expand the disk capacity. For the procedure, please refer to [Adjusting Database Instance Specification](#).

When the error message "ERROR 1040(00000): Too many connections" is displayed, it indicates that the maximum number of connections for the current CDB instance has been reached. Common causes and solutions are as follows:

- i. If there are too many sleep threads, it's advised to decrease the values of the `wait_timeout` and `interactive_timeout` parameters via the console. For details, please refer to [Setting Instance Parameters](#).
- ii. If there are few sleep threads and no slow query accumulation, it's suggested to increase the value of the `max_connections` parameter via the console. For details, please refer to [Setting Instance Parameters](#).

Check whether the MySQL instance is in a "master-slave switch state", as connection attempts will fail if the MySQL instance is in the middle of a master-slave switch. After the switch has completed, connect using the command again.

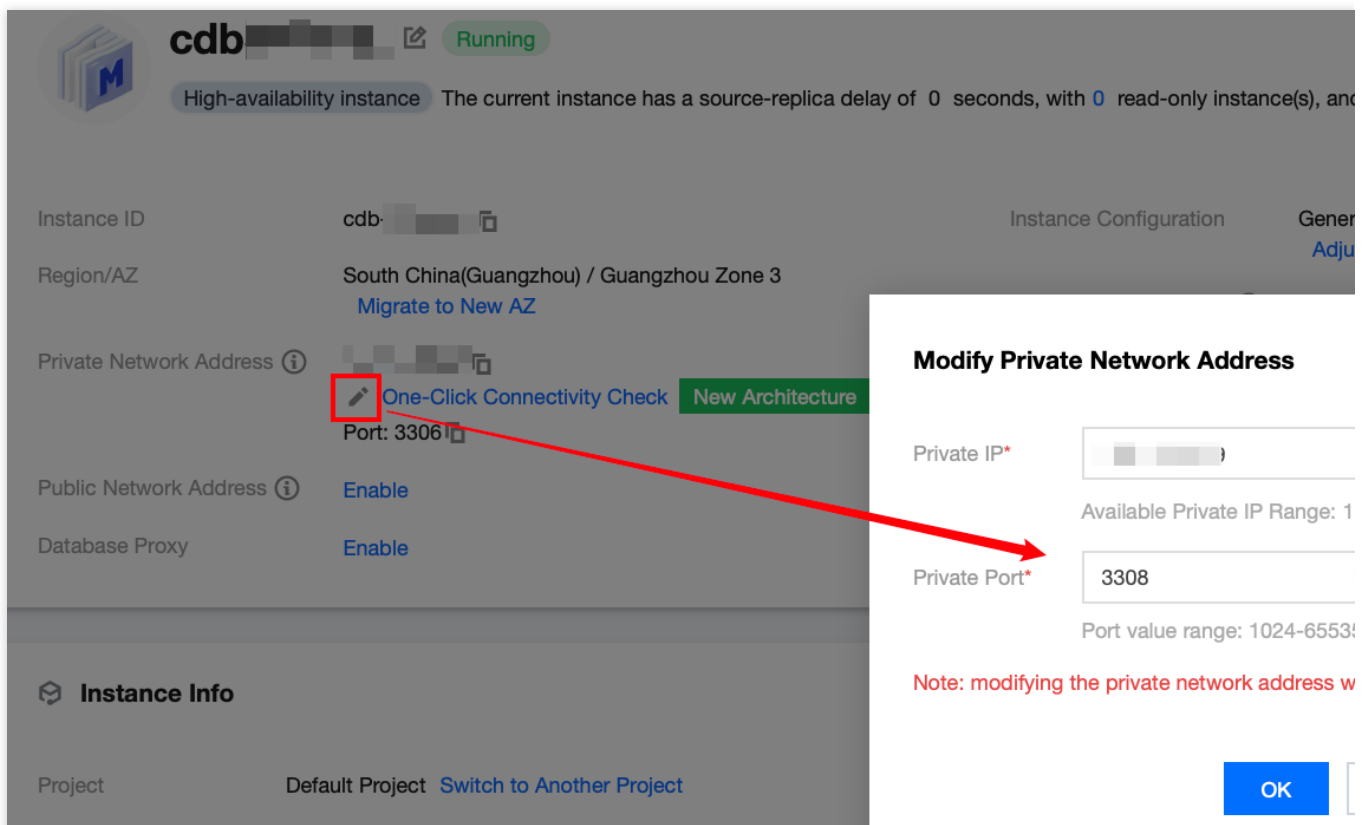
FAQs on Private Network Connection

Are there any charges for private network connection?

Private network connections are currently free of charge.

Can the private network port be modified?

Yes, it can be modified. You can log in to the [TencentDB for MySQL console](#), navigate to the details page of the target instance, and click the edit icon following the private network address to make changes.



How can I check private network connection errors?

The potential causes for the failure to connect to a database via a private network address could be typically related to the type of CVM, account password, port, DFW, the network, and instance issues. The following provides self-check methods in various scenarios. For more self-check procedures, please refer to [Private Network Connection Failure](#).

1. Check whether the server you are using is a CVM.

For private network connections, the server in use needs to be a [Tencent CVM](#). If you are using a [Lighthouse Server](#) or another non-Tencent server, connecting through a private network address is not currently supported. You can refer to [Customizing a Linux CVM](#) to recreate a CVM and then connect to the database using the private network address.

2. After logging into the CVM instance, if you repeatedly fail to log in to the cloud database via command, it's suggested to check if there are any errors in the database login account and password.

When entering the command: `mysql -h <private IP address> -u <username, default is root> -P <port number, default is 3306> -p`, the account username and password used for login must be paired correctly. If you are using a non-root account to log in, you need to enter the password of the corresponding non-root account. The password will not be displayed as you input it on the CVM interface; it needs to be entered correctly in one go and confirmed with the Enter key. If you have forgotten the password, you can [reset the password](#) and then try again.

3. Review whether the DFW configuration is correct and whether the IP is restricted.

Configure outbound rules in the CVM DFW. **When the target configuration of the outbound rule is not set to 0.0.0.0/0 and the protocol port is not set to ALL**, the private IP and port of TencentDB for MySQL needs to be added to the outbound rule.

Configure inbound rules in the TencentDB for MySQL DFW. **When the source configuration of the inbound rule is not set to 0.0.0.0/0 and the protocol ports are not set to ALL**, the IP and port of the CVM instance should be added to the inbound rule.

For instructions, please see the [Security Group Configuration Problem Resolution](#).

4. Evaluate if the issue is network-related.

The CVM and MySQL must be in the same region and VPC network. Go to the [CVM Console](#) and [TencentDB Console](#) to verify. If they are not in the same VPC network, use [Switch Networks](#) to change the network of the MySQL instance to be the same as the CVM. If the CVM and MySQL are confirmed to be in the same region and VPC network and there are still reported network errors, please check whether there are restrictions on your local network.

5. Check whether there is an instance-related issue.

If the MySQL instance disk is full, it may affect database connectivity. It's recommended to expand the disk capacity. For the procedure, please refer to [Adjusting Database Instance Specification](#).

When the error message "ERROR 1040(00000): Too many connections" is displayed, it indicates that the maximum number of connections for the current CDB instance has been reached. Common causes and solutions are as follows:

- i. If there are too many sleep threads, it's advised to decrease the values of the `wait_timeout` and `interactive_timeout` parameters via the console. For details, please refer to [Setting Instance Parameters](#).
- ii. If there are few sleep threads and no slow query accumulation, it's suggested to increase the value of the `max_connections` parameter via the console. For details, please refer to [Setting Instance Parameters](#).

Check whether the MySQL instance is in a "master-slave switch state", as connection attempts will fail if the MySQL instance is in the middle of a master-slave switch. After the switch has completed, connect using the command again.

FAQs on Public Network Connection

Do I need to pay for public network connection?

Public network connection is currently free of charge.

Why is it necessary to release the MySQL private port for a public network connection?

When the MySQL instance enables a public network address, Tencent Cloud's backend cluster is used to connect to the database's private network port. The port mapping and forwarding are performed to achieve public network access. Therefore, after enabling the public network address, the MySQL private port needs to be released in the security group to the backend cluster connections.

Can the public network port be modified?

No. Modifications are not supported.

Is the public network connection secure?

Enabling public network access will expose your database services and be invaded or attacked. It is generally advised to use the [private network for database connection](#). Public network connection is primarily used for development or auxiliary database management and is not recommended for formal business access. Because potential uncontrollable factors may render the connection unavailable, including DDoS attacks and unexpected high-volume traffic.

After enabling a public network address, how can I only allow connections to specific IPs and forbid access from all other IPs?

By imposing restrictions on host permissions, you can modify the authorized host addresses for your database account through the TencentDB console, thus limiting database access. For more information, please refer to [Modifying Host Addresses with Access Permissions](#).

Alternatively, you can use a public CLB for traffic forwarding to enable public network access. Access restrictions can be imposed by using security group policies in CLB. For more information, please refer to [Enabling Public Network Access Through CLB](#).

Why can't I enable public network access?

Public network access can be enabled for main instances deployed in Guangzhou, Shanghai, Beijing, Chengdu, Chongqing, Nanjing, Hong Kong (China), Singapore, Seoul, Tokyo, Silicon Valley, Virginia, and Frankfurt. For the latest information about the regions where public network access can be enabled for read-only instances, please refer to the console. If your instance is deployed in a region where public network access is not supported, public network access cannot be enabled.

How can I troubleshoot public network connection errors by myself?

1. After logging into the CVM instance, if you repeatedly fail to log in to the cloud database via command, it's suggested to check if there are any errors in the database login account and password.

2. Review whether the DFW configuration is correct and whether the IP is restricted.

Configure inbound rules in the MySQL security group. If the source end in **inbound rules** is not set to 0.0.0.0/0 and the protocol port is not set to ALL, you need to release the internal port for the MySQL instance in the inbound rules. The default port is 3306.

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3. Evaluate if the issue is network-related.

Connecting to the database over the public internet could fail due to various reasons such as unstable network, local network restrictions, or VPCs bound with [ACL](#) policies. In this case, switch your local network, remove relevant restrictions, and try again. We recommend using [private network to connect to the database](#) for a more reliable and low-latency experience.

4. Check whether there is an instance-related issue.

If the MySQL instance disk is full, it may affect database connectivity. It's recommended to expand the disk capacity. For the procedure, please refer to [Adjusting Database Instance Specification](#).

When the error message "ERROR 1040(00000): Too many connections" is displayed, it indicates that the maximum number of connections for the current CDB instance has been reached. Common causes and solutions are as follows:

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Check whether the MySQL instance is in a "master-slave switch state", as connection attempts will fail if the MySQL instance is in the middle of a master-slave switch. After the switch has completed, connect using the command again.

FAQs on CCN Connection

Do I have to pay for CCN connections?

Yes. You should pay for CCN connections. For details, see [CCN Billing Details](#).

Under what circumstances should a CCN be used to connect to a MySQL?

1. CCN can be used to connect to the database when the CVM and MySQL instances are in different VPCs, no matter under the same or different accounts, or in the same or different regions.
2. If you have purchased a [Lighthouse](#) server, you can connect to the database only through [CCN](#).

How can private network interconnection be achieved when using Lighthouse instances?

Lighthouse uses the VPC automatically assigned by Tencent Cloud for network isolation. By default, the private network does not interconnect with other Tencent Cloud resources in VPCs such as CVM and TencentDB. The interconnection can be implemented by associating with a CCN. For more information, please refer to [Private Network Interconnection](#).

Note:

Lighthouse only supports associating with CCNs under the same account and does not support the association across different accounts.

What is the service level of CCN?

Tencent Cloud CCN offers three levels of availability: Platinum, Gold, and Silver.

The service level for all intra-region instances is Gold, and cannot be modified.

During cross-region intercommunication, three service levels—Platinum, Gold, and Silver—are available for you to choose from upon CCN creation. The costs differ with the service level. You can select the most suitable one based on your business requirements. For more information, see [Pricing](#).

How do I troubleshoot a CCN connection error myself?

1. Check whether the route table for the CCN is valid by following the following steps:

1.1 On the "Private Network Interconnection" page, click the "CCN ID" on the regional card to navigate to the details page of that CCN.

1.2 On the CCN details page, select the **Route Table** tab.

1.3 You need to ensure that the newly added route is marked as "Valid". If there are CIDR conflicts, the route could be invalid.

Note:

If you need to utilize an invalid route, see [Disabling a Route](#) and [Enabling a Route](#). For Conflict rules and restrictions, see [Route Limits](#).

2. Upon logging in to Lighthouse, if you repeatedly fail to log into the cloud database via the command, you may need to check whether the username or password used for database access are correct.

In the command line: `mysql -h <private ip address> -u <username, default root> -P <port number, default 3306> -p`, the account and password must be paired correctly. If you're logging in with a non-root account, then the password should also correspond to the non-root account. When entering your password in the Lighthouse interface, the password will not be displayed as you type. Enter it correctly all at once and press Enter. If you forget the password, you may [reset the password](#) and try again.

3. Check whether there is an instance-related issue.

If the MySQL instance disk is full, it may affect database connectivity. It's recommended to expand the disk capacity. For the procedure, please refer to [Adjusting Database Instance Specification](#).

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